THE

AMERICAN JOURNAL

OF THE

MEDICAL SCIENCES.

COLLABORATORS.

ELISHA BARTLETT, M. D. *Professor of Pathological Anatomy in the Berkshire Medical Institution.*

JACOB BIGELOW, M. D. *Professor of Materia Medica in Harvard University, Boston.*

HENRY BRONSON, M. D. *of Albany, New York.*

EDWARD H. BARTON, M. D. *Professor of the Theory and Practice of Medicine and Clinical Practice in the Medical College of Louisiana.*

N. CHAPMAN, M. D. *Professor of the Institutes and Practice of Physic and Clinical Practice in the University of Pennsylvania.*

B. H. COATES, M. D. *one of the Physicians to the Pennsylvania Hospital.*

REYNELL COATES, M. D. *of Philadelphia.*

JOHN REDMAN COXE, M. D. *Late Professor of Materia Medica and Pharmacy in the University of Pennsylvania.*

D. FRANCIS CONDIE, M. D. *of Philadelphia.*

WILLIAM P. DEWEES, M. D. *Late Professor of Midwifery in the University of Pennsylvania.*

S. HENRY DICKSON, M. D. *Professor of the Institutes and Practice of Medicine in the Medical College of the State of South Carolina.*

ROBLEY DUNGLISON, M. D. *Professor of Materia Medica, Therapeutics, Hygiene, and Medical Jurisprudence, in the University of Maryland.*

GOUVERNEUR EMERSON, M. D. *of Philadelphia.*

PAUL F. EVE, M. D. *Professor of Surgery in the Georgia Medical College.*

JOHN W. FRANCIS, M. D. *Late Professor of Obstetrics and Forensic Medicine in Rutgers Medical College, New York.*

E. GEDDINGS, M. D. *Professor of Anatomy and Physiology in the University of Maryland.*

W. W. GERHARD, M. D. *one of the Physicians to the Philadelphia Alms-house Infirmary.*

WILLIAM GIBSON, M. D. *Professor of Surgery in the University of Pennsylvania.*

R. E. GRIFFITH, M. D. *Professor of Materia Medica and Pharmacy in the Philadelphia College of Pharmacy.*

E. HALE, M. D. *of Boston.*

GEORGE HAYWARD, M. D. *Professor of the Principles of Surgery and Clinical Surgery in Harvard University, Boston.*

WILLIAM E. HORNER, M. D. *Professor of Anatomy in the University of Pennsylvania.*

ANSEL W. IVES, M. D. *of New York.*

SAMUEL JACKSON, M. D. *Professor of the Institutes of Medicine in the University of Pennsylvania.*

SAMUEL JACKSON, M. D. *of Northumberland, Pennsylvania.*

JOHN GEORGE MORGAN, M. D. *Professor of the Principles and Practice of Surgery in Geneva College, New York.*

VALENTINE MOTT, M. D. *Professor of Pathological and Operative Surgery in the College of Physicians and Surgeons, New York.*

JAMES MOULTRIE, JR. M. D. *Professor of Physiology in the Medical College of the state of South Carolina.*

REUBEN D. MUSSEY, M. D. *Professor of Anatomy and Surgery in Dartmouth College, New Hampshire.*

T. D. MUTTER, M. D. *of Philadelphia.*

R. M. PATTERSON, M. D. *Late Professor of Natural Philosophy in the University of Virginia.*

PHILIP SYNG PHYSICK, M. D. *Emeritus Professor of Anatomy and Surgery in the University of Pennsylvania.*

THOMAS SEWALL, M. D. *Professor of Anatomy and Physiology in the Columbian College, District of Columbia.*

ASHBEL SMITH, M. D. *of Salisbury, North Carolina.*

NATHAN R. SMITH, *Professor of Surgery in the University of Maryland.*

A. F. VACHÉ, M. D. *of New York.*

JOHN WARE, M. D. *Assistant Professor of the Theory and Practice of Physic in Harvard University, Boston.*

JOHN C. WARREN, M. D. *Professor of Anatomy and Surgery in Harvard University, Boston.*

THOMAS H. WRIGHT, M. D. *Late Physician to the Baltimore Alms-house Infirmary.*

EDITOR—ISAAC HAYS, M. D. *one of the Surgeons to Wills' Hospital, &c.*

THE

AMERICAN JOURNAL

MEDICAL SCIENCES.

———

Vol. XVIII.

————————

TO READERS AND CORRESPONDENTS.

Communications have been received from Professors Gibson, Bartlett, and Dunglison, and from Drs. Henderson, Dalton, Reynolds, Keckely and Heustis.

The following works have been received:—

Medico-Chirurgical Transactions, published by the Royal Medical and Chirurgical Society of London, vol. xix. London, 1835. (From the Society.)

An attempt to Investigate some Obscure and undecided Doctrines in relation to Small-Pox, Varioloid, and Vaccination. By Luther V. Bell, M. D. Boston, 1836. (From the author.)

A Dissertation on the Boylston Prize Question for 1835. What diet can be selected, which will ensure the greatest probable health and strength to the Labourer in the climate of New England? Quantity and Quality, and the time and manner of taking it to be considered. By Luther V. Bell, M. D. Boston, 1836. (From the author.)

The Philosophy of Living, or the way to enjoy Life and its comforts. By Caleb Ticknor, A.M., M.D. New York, 1836. Harper & Brothers. (From the author.)

Address to the Medical Graduates of the University of Pennsylvania, delivered March 26, 1836. By Geo. B. Wood, M.D., Professor of Materia Medica and Pharmacy in the University. Published by direction of the Medical Faculty. Philadelphia, 1836. (From the Faculty.)

Memoir on the Nature of Miasm and Contagion. Read before the Cincinnati Medical Society, February 3, 1836. By John L. Reddell, M. D., Adjunct Professor of Chemistry and Lecturer on Botany in the Cincinnati Medical College. (From the author.)

Phrenology and the Moral Influence of Phrenology: arranged for general study and the purposes of education, from the first published works of Gall and Spurzheim, to the latest discoveries of the present period. By Mrs. L. Miles. Philadelphia. Carey, Lea & Blanchard, 1835. (From the publishers.)

An Introductory Lecture, delivered in the Medical College of South Carolina, in Nov. 1835. By Thos. Y. Simons, M. D., Professor of the Theory and Practice of Physic, &c. Charleston, 1835. (From the author.)

The Structure of the Eye with reference to Natural Theology. By Wm. Clay Wallace, oculist to the New York Institution for the Blind and to the Orphan Asylum, &c. New York, 1836. (From the author.)

The Lectures of Sir Astley Cooper, baronet, F.R.S., Surgeon to the King, &c. on the Principles and Practice of Surgery, with additional notes and cases. By Frederick Tyrell, Esq., Surgeon to St. Thomas's Hospital, and to the London Ophthalmic Infirmary. Fourth American from the last London edition. The three volumes complete in one. Philadelphia, E. L. Carey & A. Hart, 1835. (From the publishers.)

An account of the Epidemic Yellow Fever, which prevailed in New Orleans during the autumn of 1833, with an appendix, containing an extensive Meteorological Account of the year, and the mortality; and a chart of the temperature and of the atmosphere. By Edward H. Barton, M. D., Professor of Materia Medica, Therapeutics and Hygiene, in the Medical College of Louisiana. (From the author.)

Introductory Lecture on the Importance of the Information derived from Medical Science in improving the Physical Condition of a Country. By Edward A. Barton, M. D., Professor of Institutes and Practice of Medicine and Clinical Practice in the Medical College of Louisiana, Dec. 1835. (From the author.)

1*

An Address delivered before the Medical Society of the State of New York, at their annual meeting in Albany, 5th February, 1836. By JOHN H. STEEL, President of the Society. Albany, 1836. (From the author.)

Circular and Catalogue of the Curators, Faculty, and Students of the Medical Institution of Geneva College. 1835-6. (From Professor Morgan.)

A Manual of Midwifery, or compendium of Gynæcology and Paidonosology, comprising a new nomenclature of Obstetric Medicine, with a concise account of the symptoms and treatment of the most important diseases of Women and Children, and the management of the various forms of parturition. By MICHAEL RYAN, M. D., Lecturer on the Practice of Medicine, Obstetrics, and Medical Jurisprudence, &c. &c. &c. First American from the third London edition. Burlington, Smith & Harrington, 1835. (From the publishers.)

Revue Médicale, September, October, and November, 1835. (In exchange.)

Journal Hebdomadaire des Progrés des Sciences, et Institutions Médicales, October and November, 1835. (In exchange.)

Gazette Médicale de Paris, September, October, and November, 1835. (In exchange.)

La Lancette Française, September, October, and November, 1835. (In exchange.)

Bulletin Général de Thérapeutique Médicale et Chirurgicale, October and November, 1835. (In exchange.)

Journal des Connaissances Usuelles et Pratiques, November, 1835. (In exchange.)

Journal de Pharmacie et des Sciences Accessoires, September, October, and November, 1835. (In exchange.)

Journal des Connaissances Medico-Chirurgicales, October and November, 1835. (In exchange.)

Mémorial Encyclopédique et Progressif des Connaissances Humaines, September and October, 1835. (In exchange.)

London Medical Gazette, Dec. 1835, January and February, 1836. (In exchange.)

The India Journal of Medical Science, January to December, 1835. (In exchange.)

The Jamaica Physical Journal, November and December, 1835. (In exchange.)

The Transylvania Journal of Medicine and the Associate Sciences, January, 1836. (In exchange.)

The Boston Medical and Surgical Journal, February, March, and April, 1835. (In Exchange.)

United States Medical and Surgical Journal, March and April, 1836. (In exchange.)

Authors of new medical books, desirous of having them reviewed or noticed in this Journal at the earliest opportunity, are invited to transmit to the *Editor* a copy as soon after publication as convenient, when they will receive prompt attention. Under ordinary circumstances, very considerable delay is caused by the circuitous routes through which they are received.

Papers intended for publication, should be sent, *free of expense*, as early after the appearance of the Journal as possible, in order to be in time for the ensuing number. Such communications should be addressed to "CAREY, LEA & BLANCHARD, Philadelphia, for the *Editor of the American Journal of the Medical Sciences.*"

All letters on the *business* of the Journal to be Addressed exclusively to the publishers.

CONTENTS.

ORIGINAL COMMUNICATIONS.

ESSAYS.

REVIEWS.

BIBLIOGRAPHICAL NOTICES.

QUARTERLY PERISCOPE.

FOREIGN INTELLIGENCE.

ANATOMY.

MIDWIFERY.

CHEMISTRY.

MISCELLANEOUS.

AMERICAN INTELLIGENCE.

———

Art. I. *Experiments on Absorption.* By John W. Draper, M. D.
Christiansville, Mecklenburg, Va.

1. If we could place a known volume of vapour in the centre of an
extensive void, where no disturbance from without could solicit its
particles to move in one direction rather than another, it is to be sup-
posed, that, conformably to certain laws that are known to obtain and
operate on bodies of an aerial constitution, movement would ensue.
To an assignable limit the vapour would expand, by a species of re-
pulsion of its own particles. In the immense vacuum in which the
solar system moves, there are orbs that seem to fulfil this condition;
these, though they wander through very large paths, and are disturb-
ed by the reaction of bodies they move past, sufficiently approximate
the circumstances here laid down, to show that there is an extent, be-
yond which, bodies, so constituted, are not disposed to expand. As-
tronomical observations also show, that gases such as our own atmo-
sphere is composed of, do not by their expansion trespass beyond a
given point into a void, for then the laws upon which they are formed,
react as the firmest barrier from without would do, to prevent their
further extension.

2. An orb, so constituted, could not in any length of time, undergo
any change of composition, structure, or figure. For, so soon as the
first motion was over, which decided its equilibrium, that equilibrium
would remain undisturbed, unless forces from without were brought

to bear upon it.   In a void, such as we are here supposing, apart from any such derangement, equally a void as to force as well as to matter, the vaporous mass could not be subject to any contingency.

3. Let us extend our supposition, by placing another volume in presence of the former, and differing from it in chemical composition alone.   That difference would determine certain motions of penetration, in addition to those resulting from mere mechanical action. Not only would the united mass move, so as to assume a mathematical equilibrium, but its constituent parts would also move, so as to establish a chemical equilibrium at the same time. Wherever an atom of one of the vapours existed, there would be found one of the other also. To bring about this result, a mutual penetration of parts is demanded, a transit of the constituents of one vapour among those of the other. The motions that effect this arrangement, take place without any resistance, just in the way that the light of a distant star comes into our system undeterred by the rays of our sun, and moves freely in every direction; his beams also move in the vacuum, intersecting the paths of other luminous bodies, without any hindrance or shock.

4. In this state of extension, when the component atoms of a gas or vapour, are supposed to be stretched to their utmost limit, which we are prone to suppose can only be done by an increase of the distance usually existing between an atom and its neighbours, it is not difficult to suppose that these different motions can go on, and that a foreign atom may insinuate itself in the interstices between others. But our ideas of space and size being only relative, and as we know nothing of the dimensions of an ultimate atom, nor of the interval that parts it from those around it, it is plain we could not without actual experiment determine when a body had arrived at that state of condensation, or when its particles had become so closely approximated to each other as to refuse the admission of foreign atoms between them.

5. A mass of any kind, in a vacuum, and undisturbed, moves, therefore, only in that manner which the laws of dynamics indicate.   Motions of another kind, however, are induced when the vacuum is changed for a substance; a kind of penetration, permeation, or absorption is the result; nor do the mechanical conditions of bodies appear to have any effect on this: with some of these phenomena we are familiar. A gas, a liquid, or a solid, may indiscriminately pass by solution into the pores of water, without any reference to their aggregation.   A variety of words have been used to express this action; solution, endosmosis, permeation, &c.; but parting from the simplest

experimental condition, we shall have occasion to see that all these refer to varieties of *one phenomenon only.*

6. BINARY ARRANGEMENTS.—If a solitary body has thus no opportunity of exhibiting the conditions of its own arrangement, as to structure or the forces that inhabit the interstices of its atoms, it is very different with a binary arrangement. Chemists are familiar with the phenomena exhibited when gases, solids, or liquids are exposed to each other, under those circumstances where no direct change of composition ensues. Thus, if a cubic inch of carbonic acid gas be exposed to a cubic inch of water, the gas in a short time passes into the liquid mass, or is absorbed by it, with a certain degree of force, and to a certain amount. Also, aqueous gas rises from the water, and diffuses itself into the unabsorbed remainder of the carbonic acid. After a sufficient time, no part of the carbonic acid will be found destitute of aqueous gas, nor will any part of the water be without its equivalent of carbonic acid. The simplest example of these combinations is furnished by the solution of saline bodies in water, where there is no change of chemical composition, but merely a detachment of the solid crystalline particles from the mass of the dissolving substance; these pass among the interstices of the liquid, and remain there, unaffected by gravity, being equally and uniformly diffused. Of the powers by which this is brought about, we are not well informed, but no fact in science is better ascertained than this uniform and equable diffusion. If, by affinity, we mean a power that causes substances to unite with an interchange of elements, or only exerted to bring about an alteration of composition, such a force is obviously insufficient to give rise to these effects.

7. That one particle has the power of attaching itself to another of a dissimilar kind, without any thing like change of composition, numerous facts demonstrate. The most delicate dyes that adhere to cloth-fibre offer an example; they cannot be supposed to be attached by any force affecting either their composition or structure, since the successful operations of the artist proceed upon the supposition that the tint shall remain unimpaired, and the strength and organization of the fibre which is dyed shall remain untouched. Now, in those cases where we know that the dying material acts chemically on the fibre, is there not abundant proof that the elementary changes affect the uniting bodies? is not the hue of the dye changed, and does not the fabric become rotten? Other facts also show that these adhesions, without chemical change, are possible; the foil on the back of a mirror is not retained by the exercise of any force which has brought about a change in its composition. When the dye is washed off, or the foil

scraped away, the cloth-fibre and the looking-glass are both found in their original integrity of structure.

8. The cases here cited furnish examples of one solid uniting to another in a manner that involves something different from the action of chemical affinity. There is a whole range or class of similar combinations; a solid may unite thus with a liquid, as sugar and water; a liquid with a liquid, as alcohol and water; a liquid with a gas, as carbonic acid and water; or a gas with a gas, as oxygen and nitrogen, or the atmosphere. All these are cases where there is no interchange of chemical elements, and which we cannot therefore suppose to ensue in virtue of chemical force.

9. Although these actions are the result of a kind of adhesion of particle to particle, and might therefore be supposed to take place in an indiscriminate or irregular manner, there are some remarkable circumstances attending them, which go to show the contrary; thus water will dissolve a certain quantity of sulphuric ether and no more; it will take up its own volume of carbonic acid and no more; it will hold in solution of bisulphate of potash, sulphate of ammonia, protosulphate of iron, bicarbonate of potash, chromate of potash, muriate of strontian, &c. half its weight, at 60 F. At the same temperature it dissolves its own weight of sulphate of magnesia, and this comparison might be extended much farther. The same kind of predilection for definite quantities obtains also in gases, as is the case with atmospheric air where the proportions of oxygen dissolved in nitrogen, is as one to four.

10. All these things go to prove that the passage of the particles of one body among the particles of another, proceeds upon certain and definite laws. Whether the residence of saline atoms among the interstices of a liquid is a phenomenon of the same sort as the adherence of dye to a fibre, it is not material to inquire. We know, by experiment, that a solitary gas has a tendency to expand itself to a certain extent, but not further; and we are equally assured, that bodies, whether of the same or of different kinds, have an inclination to penetrate into each other. Where there is an apparent indisposition to do this, we are not without plausible reasons for supposing it through the intervention of disturbing causes. If oil and water do not commingle, it is a result determined by the action of their cohesion, as compared with the force of attraction between them. An interesting example of this nature is afforded by the action of mercury on glass; under ordinary circumstances they show no disposition to unite, not even so much as water and oil; but, by a suitable application of heat, the cohesion of the mercury may be so lessened, and its force of attrac-

tion for glass at the same time so exalted, that it can be brought to *wet* it; an experiment first successfully performed by Laplace.

11. This *nisus*, or endeavour of one body to diffuse itself into the interstices of another has, under a variety of forms, been long recognised. The solution of salts, the absorption of gas by liquids, the passage of liquids through crystals, the permeation of porous textures, the diffusion of gases, the languid movement occurring in solids, were known long ago. Of late years, some extension of these facts has been obtained, and the new phenomenon, though explicable on the same principles, is dignified by the title ENDOSMOSIS.

12. For the explanation of the whole of this most interesting series of results, one postulate alone is demanded. That *all bodies have a tendency to diffuse themselves into the interstices of all others, with more or less intensity.* Nor is it difficult to admit this principle in its fullest extent, when we consider the numerous examples philosophy affords of it. All kinds of chemical absorptions and solutions are cases of it. The disturbing causes which sometimes change or even entirely hinder these actions, we shall consider hereafter.

13. BINARY ARRANGEMENTS, or those in which *two* bodies are engaged, whether solid, liquid, or gaseous, exhibit some circumstances which it is here necessary to point out. Let us suppose the couple under consideration, as oxygen gas exposed to an equal volume of water. No remarkable phenomena attend the passage of the gas into the liquid, there is no rise of temperature, and the whole amount absorbed is greatly less than the bulk of the water. If another gas be substituted, as carbonic acid, though much more soluble, there is still no indication of change of temperature, but ammonia and chlorohydric acid condensing to a much greater amount, disengage much heat. Another couple might be assumed, as charcoal or porous masses, with oxygen or other gases, and similar indications be obtained.

14. If, after a liquid has absorbed as much of any given gas as it is capable, we remove the remnant of unabsorbed gas, and in its place substitute some other of a different kind, complex reaction ensues. The gas, already absorbed by the water, has its condition of equilibrium disturbed, and in conformity with the general principle, (12,) it has a tendency to diffuse itself out of the water into the newly introduced gas. This, in its turn, has also a tendency to pass into the water. Thus, if over a volume of water,

Fig. 1.

2*
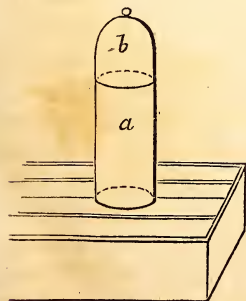
a, impregnated with carbonic acid, and confined in a jar over mercury, we placed a volume of oxygen, *b,* equilibrium would not be obtained until a certain amount of carbonic acid was found in the gas, *b,* and a certain amount of oxygen in the water, *a.* And the same would hold in the case of any other gases, or any other liquid. In the course of experiment, examples of this case are often met with. The water commonly used in pneumatic troughs, contains both oxygen gas and nitrogen. If, into a jar containing such water, we pass pure nitrogen gas, in the course of a few minutes the oxygen will leave the water to diffuse itself into the nitrogen. Had we thrown in pure oxygen, the nitrogen, on the contrary, would have deserted the water and mingled with the oxygen gas. In gaseous analysis, this action, which obtains to a greater or less extent with every gas, often gives rise to the greatest perplexity.

15. TERNARY ARRANGEMENTS.—It is plain that the conditions of the action considered in the last paragraph, may be obtained *at once* by suitable arrangements; and, as it is important that these should be well understood, I shall dwell upon them minutely.

16. In paragraph 14, we considered the reaction ensuing, first, of a single couple, or binary arrangement, and then the disturbance effected by the introduction of another element. Could we then, *at once,* have exposed the volume of water by one surface to oxygen gas, and by another to carbonic acid, the changes that were consecutive,
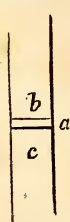
Fig. 2.

would have been simultaneous. Let *a* be a sheet of water, on which, at its upper surface, a volume, *b,* of carbonic acid reposes, and, beneath its under surface, *c,* a volume of oxygen; both gases pass *at once* through the water in opposite directions, into each other. It is evident that the thinner we make the barrier of water, the more rapidly will equilibrium be obtained. This I have accomplished in the following manner, by using mere liquid films, and for that purpose have taken advantage of soap and other bubbles. A glass tube ⅜ inch in the bore, and seven or eight inches long, is to be drawn out at one extremity to a capillary termination, and when the bubble is to be blown, the other end is dipped into a solution of soap. The tube having been previously passed through a cork, as in *Pl. I. fig.* 1, is now to be introduced into a clear vial or bell glass, whose neck the cork fits loosely; on blowing at the capillary termination the bubble slowly expands in the vial, where it is protected from access of air. To measure its diameter, I take a strip of white pasteboard, and divide it into inches and decimals, placing it in such a position before the vial, that it should cross the bubble diametrically, then with a small tele-

scope that magnifies twelve or twenty times, and at the distance of about eight feet, I observe the bubble much magnified, the micrometrical pasteboard apparently passing through its very substance, as is shown in *Pl. I. fig.* 2.

17. Through a soap bubble 1·53 inch in diameter, whose substance, previous to expansion, was contained in a cylinder $\frac{1}{8}$ inch in diameter and $\frac{1}{4}$ in height, ammonia, either pure or diluted with atmospheric air, passes instantaneously, when air from the lungs is on the other side. Into the bottle in which the bubble is to be blown, a little strong solution of ammonia is to be poured, the bubble is then expanded, at a particular point it becomes dyed with the richest hues, and that moment the phenomenon of endosmosis is complete—care must be had to suffer no moisture from the mouth to close the capillary termination of the glass tube—and now a rod, *a*, (*Pl. I. fig.* 2,) dipped in muriatic acid, is to be brought over the opening; as the bubble is collapsing by the attraction of its own parts, dense fumes of muriate of ammonia make their appearance, which continue until the substance of the bubble has entirely returned into the tube. The extraordinary rapidity of this action is remarkable. The bubble is scarcely blown before it is full of ammonia; and it is not less interesting to observe how the colours play with change of atmosphere. A little cylinder expanded to the size of a pea, which, in common air, is opaque white, and which would not be coloured until expanded to six or eight times that diameter, becomes deeply tinged as soon as it is penetrated by ammonia. If restored to the free atmosphere it loses all its beauty, and these alterations may be kept up at pleasure by merely changing it from one medium to another.

18. When, for the purposes of experiment, it is desirable to have a permanent bubble, a small column of moisture from the tongue must be allowed to close the capillary termination of the tube.

19. In the same manner sulphydrate of ammonia is found to pass with instantaneous rapidity through the film, and is to be detected by a paper dipped in acetate of lead. The colours in this case become very quickly stable, as with ammonia, and do not produce that iridescent play which the passage of certain other substances affords. It is, however, essential to the success of these experiments that the substances about to be passed through the film shall not have any chemical action upon it. Thus, it is not possible to use muriatic acid, which decomposes the soap, but there is no difficulty in the management of such as oxygen, hydrogen, nitrogen, &c. The passage of hydrogen through these films, is exemplified in the following table.

Diameter of a bubble of hydrogen gas exposed to atmospheric air.

	When Blown.	In two Minutes.	×
Exp. 1,	·460	·430	·430
2,	·415	·390	·390
3,	·425	·400	·400

Diameter of a bubble of atmospheric air exposed to hydrogen gas.

	When Blown.	In two Minutes.	×
Exp. 1,	·470	·485	·495
2,	·360	·375	·380
3,	·420	·435	·445

20. The third column, marked × in these tables, was taken when the black spot on the top of the bubble was about half an inch in diameter, for, as the coloured rings were the same in each experiment, and the surface incapable of reflecting light of equal extent, it is presumable that the measures were obtained under like circumstances, as far as the thickness of the film was concerned. In all cases the bubbles were blown by pressure on a gum elastic bag. This method of measuring the expansion, though suitable for general purposes, cannot, however, be extensively relied on, owing to thermal disturbance and the earth's action changing the figure from a true sphere to a prolate spheroid.

21. It is interesting to remark with what extraordinary rapidity these permeations take place. If we expand a small bubble in a vessel of ammonia, hydrogen, sulphuretted hydrogen, &c. by means of the mouth, and without removing the lips from the capillary opening of the tube, inhale *immediately* the contents of the bubble, the gaseous matter will impress the organs of taste with a very distinct savour, peculiar to the gas, on which the experiment is tried. There is a class of vapours which appear to possess little or no affinity for water, such as ether and the essential oils; these, however, percolate through tissues of water with rapidity. On covering the bottom of a vial with oil of peppermint, and then expanding a bubble, the taste of the essential oil will be perceived, when a portion of the air is drawn back out of the bubble into the mouth. With other oils, as cajeput, and with ethers the effect is the same; and it is to be observed that during the transit they work the surface of the bubble into a kind of microscopic waves and an iridescent play of colours.

To obviate any exception that might be taken to the use of soapy matter in these films, or to their excessive thinness, I have employed the following arrangement, which establishes the same truth. A tube,

Fig. 3.

b, open at both ends, and whose upper extremity is shaped into a trumpet-like expansion, has at *a* a disc of common writing paper, cemented water tight. The part, *b*, which is under *a*, being filled with hydrogen gas, and a thickness of water being placed on the disc, as *á a*, the lower end of the tube is closed by placing it on the shelf of the pneumatic trough.

23. Into such a tube I threw 200 measures of hydrogen gas, and the same quantity into one whose upper extremity was hermetically sealed, by way of affording a comparison. In the former the thickness of the roof of water was about $\frac{1}{8}$ inch, and, in 24 hours, the level of the water in it rose half an inch, whilst in the latter it remained undisturbed, thus incontestibly proving that hydrogen gas passes with great freedom through masses of water. Nor is this permeability confined to that liquid alone: a tube which was thus covered with a tissue of lamp oil, in five days raised the level of the water in it more than two inches; and one whose roof was of copaiba balsam threw out all the gas to within $\frac{1}{8}$ of an inch of its top; whilst a tube of the same size, but sealed at the other end, that stood by them, kept its level.

24. It appears to me, the reason that we have not hitherto understood the phenomena of endosmosis, or the action of these ternary arrangements, as I have called them, has arisen chiefly from the employment of substances as barriers, which were possessed of pores of sensible size. A moment's consideration will place this in its true light; suppose two gases were kept apart by the intervention of a plug of charcoal in their diffusion into each other, not only would those portions pass the barrier which were brought along by a direct action, but a much larger quantity would *slip through by mere leakage* among the pores. Bladder, tissues, stucco plugs, &c. which we know to possess pores of sensible size, lay open to this objection; but the case is very different with liquids, which, from their uniform condition and the close proximity of their atoms, admit of no such action. A mass of stucco, a foot thick, would be subject to this kind of mechanical derangement, but a sheet of water reduced to that *excessive degree of thinness that it is invisible,* allows no gas to go through it by leakage, but all passes by absorption.

25. The original experiment of Dutrochet on ENDOSMOSIS, and those of Dr. Mitchell, were examples of this class of *ternary arrangements.* In these cases, membranes or gum elastic were tied over the

mouths of vessels, and the result was shown by the swelling or sink-
ing of the barrier.   These can be repeated, in a more satisfactory
manner, with liquids.   I took a vial, or glass tube, whose neck
might be half an inch in diameter, and dipping the end of my finger
into a solution of soap, I so passed it over the mouth of the vial as to
leave a very thin filmy sheet there.   The vial so situated, and of course
filled with atmospheric air, was placed under a jar, covering a wine glass
containing strong ammonia, as at *c, Pl. I.* fig. 3.   The ammonia now passed
instantly through the aqueous tissue, tinging it of the richest hues; at
the same time I saw the bubble, which before was horizontal, raise itself
up, *Pl. I.* fig. 4, its tints each moment varying, *Pl. I.* fig. 5.   When it had
risen so as to be considerably more than a hemisphere, as in *Pl. I.* fig. 6,
a black spot appeared at its summit, and, as the bubble still expanded,
the spot enlarged, until at length it appeared spread over the whole
surface, *Pl. I.* fig. 7.   The film of water was then perfectly invisible,
except from certain positions, where the eye might catch its contour.
Sometimes it would continue at this excessive thinness for a short
period; a thinness so great that it was utterly unable to reflect light;
but, at last, its cohesion yielding to the action forcing it out, it burst,
closing one of the most beautiful experiments that the eye can behold.

26.   In this experiment we also recognise an identity of results,
with those which have heretofore excited so much attention, under
the title *Endosmose;* but, understanding in this case, as we do tho-
roughly, the conditions under which the result is obtained, there is no
difficulty in extending the explanation of one experiment to the other.
ENDOSMOSE IS ONLY A COMPLEX CASE OF SIMPLE ABSORPTION.   The me-
chanical results here obtained, the swelling or sinking of the barrier,
depends on the more rapid absorption of *one gas* by that barrier.
The condition under which we obtain the mechanical result, will, by
being duly varied, also furnish chemical results, an investigation of
which forms our next object.

27.   CHEMICAL DECOMPOSITION, *and first, by* BINARY ARRANGEMENT.—
A solitary arrangement of any kind has no power of change in itself,
whether it be of a simple or of a compound nature; but it is conceivable,
that one of the latter kind—compound—on forming part of a binary
arrangement, may be differently affected; as an illustration, let us
take atmospheric air and water, appropriately situated, to form such
an arrangement.   In this case, were the nitrogen and oxygen equally
absorbable by the liquid, no remarkable result would ensue; but such
is not the fact; the oxygen gas passes much more quickly into the
water than the nitrogen, and decomposition takes place.   An excess
of oxygen being in the liquid, and an excess of nitrogen being left.

We should, therefore, expect that rain and dew, and springs, and rivers which have been exposed in the most divided state to the air, ought to contain a gas richer in oxygen than that of the atmosphere; and such, in fact, is the case, the atmosphere containing one volume of oxygen and four of nitrogen, the gas of water containing one of oxygen and two of nitrogen, as we shall shortly find.

28. Instead of a gas and a liquid, to form these binary arrangements, a solid and a gas may be used. Into 500 measures of atmospheric air, a piece of charcoal, that had been made red hot and quenched under mercury, was placed. The volume of the air experienced a rapid diminution, and, after the absorption had gone on for several hours, there remained 205 measures, 100 of which contained only eight of oxygen. The charcoal was now introduced into water, over mercury, and commenced very actively evolving gas, which contained only 3·75 per cent. of oxygen, and the last portions of it that were given off, only 28. Solution of lime was not capable of detecting the presence of carbonic acid in the water.
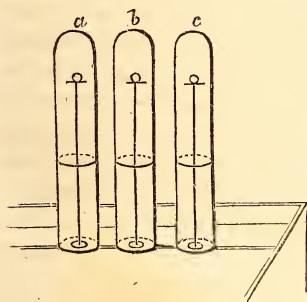
29. In the place of charcoal other porous solids might be substituted; into the jar, *a*, which contained atmospheric air, there was introduced a piece of red hot pumice stone; into *b*, a piece of clay, that had been made red hot; and into *c*, a piece of charcoal quenched under water. Absorption took place in them all, and, in a quarter of an hour, *a* was found to contain 19 per cent. of oxygen, shortly after *b* was found to contain 19 per cent. of oxygen, and *c*, in half an hour, only 18 per cent. Also, in five hours, *c* only contained 17·25 of oxygen, and in seven days, only seven per cent.; but, at the same time, *a* and *b* contained 14·50 per cent. Four days after *c* contained only five per cent.

Fig. 4.

30. By long boiling, I extricated all the air possible by such a process, from a quantity of water, and pouring it into a glass cup, left it exposed to the atmosphere for some days; at the end of that period the water was again boiled in a close vessel, and the gaseous matter it had absorbed submitted to analysis. After the carbonic acid had been carefully washed off, its amount being about 29 per cent., it was found that the residue contained 32½ per cent. of oxygen gas. It is a singular fact, that an aqueous tissue, in thus decomposing atmospheric air, appears to follow a very simple law; pure spring water and

distilled water, after a competent exposure to the atmosphere, are found to contain a gas whose elements are not in the proportion of *one* to *four*, as in the case with the atmosphere, but in the proportion of *one* to *two*. In several analyses of the air extricated by boiling from the water of my spring, which flows from a sandy bottom, and also from the dews which fall on a neighbouring hill, but too remote to be affected by the exhalations of dwellings, I found the proportion, when care was taken in the analysis, to be uniformly $33\frac{1}{3}$ per cent., or as 1 to 2 by volume. This gas, thus extricated, is isomeric with protoxide of nitrogen, with the particular exception that, in the protoxide, the two volumes of nitrogen are compressed into half their bulk.
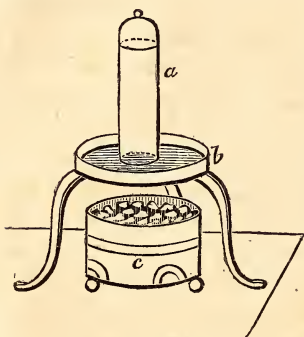
Fig. 5.

31. In a quart jar a, which was filled with spring water and inserted into a tin capsule b, I collected all the aeriform matter that could be disengaged from the water by means of a fire c, placed beneath the jar and its tin. This gas, from many prior trials, I knew to contain $33\frac{1}{3}$ per cent. of oxygen. When all the gas was collected that could be extracted, at a temperature long continued close upon the boiling point, the arrangement was suffered to cool, and kept undisturbed for four days; at the close of that time, considerably more than three-fourths of the gas disengaged was reabsorbed, the residue on analysis contained 5.25 per cent. of oxygen only. A portion of the water in the jar was now submitted to a boiling temperature in a small close vessel, and the gas collected was analysed. It contained, instead of $33\frac{1}{3}$, rather more than 47 per cent. of oxygen. There cannot, therefore, be any doubt, that oxygen may be obtained from the atmosphere, in a pure and undiluted state, by the action of a tissue, or a binary, and also a ternary arrangement.

32. Decompositions by ternary arrangements.—After this consideration of the case, in which two elements are employed, we are

Fig. 6.

prepared to understand how ternary arrangements effect decompositions. Let a be a compound gas, which is placed above a barrier b, of such a nature, that one of the elements of a shall pass more rapidly through it, or, in other words, be more readily absorbed by it than the other. Also, let the other substance c, which is on the opposite side of the barrier, be of a kind capable of removing the quicker passing ele-

ment of *a* from the under surface of *b*, as fast as it arrives there. It is immaterial how this removal be accomplished, whether by chemically uniting with it, or by mechanical action; the quick passing element, finding in its approach to the under surface of the barrier, a ready exit, continually passes off, and its place is supplied by fresh portions from above, so that in the lapse of time only the less absorbable element will be found in *a*.

33. The general conditions, therefore, of chemical decomposition by ternary arrangements, are: that one element of the compound to be decomposed, shall pass more easily through the barrier or bounding tissue, than the others, and, on its arrival at the opposite side of the barrier, it shall be rapidly removed.

34. Reasoning upon this principle, I succeeded, nearly two years ago, in effecting decompositions in this manner, which have some important physiological applications. Having taken a tube, one of the ends of which was expanded into a trumpet-shape, and closed with a thin serous membrane—peritoneum stripped from the liver—which was tightly tied on with a waxed thread, while it was wet, I poured through the orifice, which was open, a strong *but clear* solution of litmus in water, to the height *a*. The tube thus situated, was placed in a wine-glass containing strong alcohol, and the level of the liquid, inside and outside, made to coincide, as in *Pl. I. fig.* 8. The conditions for decomposition were thus fulfilled, the water could find a ready passage through the serous membrane, but the colouring matter could not. Now, on arriving at the under side of the membrane, the water either was removed by uniting chemically with the alcohol, or by sinking mechanically through it to the bottom of the glass. Complete decomposition was effected, all the colouring matter being retained above the membrane, and, on placing a candle on one side of the glass and the eye on the other, dense striæ of colourless water were seen passing through the alcohol, but not a particle of the litmus escaped.

Fig. 7.

35. Under this condition those experiments which have been instituted to demonstrate the passage of colouring matter through the lacteals have been made. The lacteals do not open into an intestine with patulous mouths, but their lining membrane of serous tissue ends bluntly in a kind of cul de sac. Through such a membrane, litmus, indigo, &c. cannot penetrate, though water may find a ready passage. Hence, because we cannot colour the chyle by an injection of litmus or indigo water, it is not to be inferred that no medicine can pass from an intestine into the lymphatic system, the experiment, now detailed,

goes to prove directly the reverse, and furnishes us with an explanation of the uniformity of colour of the fluid in the chyliferous vessels.

36. An important circumstance in gaseous analysis, may here be noticed. If a tissue, in the act of transmitting gas, or ready to do so, be placed in contact with another gas, of a different nature, disturbance immediately ensues. A cubic inch of nitrogen gas, made with phosphorus, but which was found to be contaminated with $4\frac{1}{2}$ per cent. of oxygen, was agitated briskly in a vial containing about an ounce of spring water, such as has been mentioned to contain a gas $\frac{1}{3}$ oxygen. In *one minute* the nitrogen gained one per cent. by the agitation. The same quantity of nitrogen gas, agitated in a pint of water, gained no less than *eleven* per cent. of oxygen, which it had taken from the rich gas of the water. Nor is agitation or mechanical violence necessary to produce this important result. Into a bell, filled with water, and inverted into another vessel, so as not to touch it in any point, I threw 100 measures of a gas, 85 of which were oxygen. After four weeks an analysis was made, and the gas in the bell found to contain only 72 per cent. of oxygen, the remainder being nitrogen. In this way, too, in the lapse of time, from an inverted vessel, partially filled with atmospheric air, the oxygen will escape into the water, and thence into the atmosphere; and I have twice known this event to take place, so that the residue did not contain more than three or four per cent. of oxygen. In many of the most delicate researches of chemistry, we have this disturbing cause in operation, which has for the most part been overlooked. Water is universally employed in our laboratories as a means of confining gases; it enters largely into our processes of pneumatic manipulation; and though we have hitherto neglected its action, it silently disturbs all our results. An air bell cannot pass to the top of a jar without instant contamination: during its residence there it is subject to a continued succession of changes—at no two moments is it the same in composition—a perfect freedom of communication existing between it and the atmosphere.

37. As an instrument of rigid analysis, the pneumatic apparatus, so arranged, requires to be used with circumspection. It is impossible to keep oxygen, nitrogen, or any other gas in its original purity, if confined by water. This fluid, which, when reduced to a thin, imperceptible film, is instantaneously permeated by almost every substance, undergoes the like action in course of time, even in deep masses. Gases are absorbed by it, and thrown off by it in its purest state; how much more complicated then must its action be in that impure condition in which it is commonly used. Connected with this point there is another:—if a series of bells stand on a pneumatic

trough, each will affect all the others, communicating a part of its contents and receiving from them in return. A jar, containing binoxide of nitrogen, standing by the side of one containing common air, seriously affects it. I have noticed two common tumblers, filled with these gases, and so placed, communicate with each other so freely, that, in 17 hours, the tumbler, originally filled with atmospheric air, contained only $9\frac{3}{4}$ per cent. of oxygen. The habit of collecting gases at the same trough, that is destined to preserve others, is very exceptionable; we place the disturbing agency in circumstances the most favourable for its action. All operations of washing are liable to the same strictures.

38. We have assumed it as a LAW OF NATURE, that every or any substance, when placed in opposition with another, has a tendency to diffuse into it.

39. It is to be remarked, in reference to this, that no hypothetical cause is assumed, it is merely taken as one of those ultimate facts, which the progress of knowledge has not explained. We do not consider whether it involves the position that two bodies can exist in one place at one time, nor do we deny the impenetrability of matter. But it is required of us by a crowd of facts to admit this law, as the only legitimate position on which they can be explained. We know nothing of the size, or figure, or condition of the ultimate atoms of bodies; there are, indeed, some circumstances which would lead us to suppose that, even in the densest structures, each particle is at an immeasurable distance from those that are next around it, in comparison with its own diameter. In those interstices, which must necessarily exist, these phenomena of absorption may take place, in accordance with laws which obtain among the molecules of bodies. In the same way that a comet comes down from the regions of space, and traverses a planetary system, receiving impressions, greater or less, from each star that it passes, and emerges back again, untouched and unimpaired, so a gaseous particle may pass through the system of atoms that constitute a solid mass, and moving therein unimpeded and without contact with any of them, may emerge without change of physical condition, or only a mark, that its motion has been subject to those laws which obtain in the system through which it has gone.

40. All these observations go to establish the point, that pores of a sensible size have nothing to do with endosmosis—that it is a phenomenon depending simply on absorption. No one would aver that water possessed any apertures, or vessels, or tubular arrangement.

41. The experiment of (17) does not alone prove that endosmosis takes place through liquids and tissues whose pores have no sensible

size, it has a much more interesting application.   Physiologists know
that the primitive form of all organic bodies is an imperforate vesicle
or globule, having the power of absorbing those substances which are
around it, and decomposing them.   The ultimate vesicle yields to
analysis the elements of water and a few salts.   It is a centre of vital
activity, a laboratory assimilating things for its own substance.   The
simplest plants, confervæ, tremellæ, and the simplest animals, consist
alone of this structure.   Let us observe how nearly this vesicle agrees
both in its constitution and mode of action with the vesicle of (17.)
Like that, it is not only an imperforate, but also consists of the very
same elements.   The properties which the organized vesicle is sup-
posed to enjoy, are met with in the fullest extent in that which is not
organized.   Both have powers of endosmosis and a species of assimi-
lation of things exterior to their own substance.   What property have
the lowest order of animal and vegetable life which that bubble does
not possess? A thing thus endowed with vitality may well excite our
interest—it breathes, it is nourished, it exhales.

42. We may further remark, the vesicle of physiology is supposed
to be organized, and, therefore, endowed with *life*, but what power or
property does it possess which its inorganic and *dead* representative
has not.   The phenomena of life and vital force, which are only the
aggregate of the actions of these organic elements, have obviously here
no place, and it becomes an object for us to determine whether those
occult and unknown and undefinable principles are really the cause
of all the phenomena of this animal frame; or, whether such princi-
ples, having no existence, we are not rather to refer these phenomena
to the direct agency of simple dynamic force.   Is the growth of an
animal or a vegetable that is referred to a principle of life, more mys-
terious than the growth of a crystal or the filling of a metalliferous
vein?   Are we, with the ancients, to suppose that the blood turns red
because the lung is alive, or are we not rather to seek in the multiplied
actions of the molecular force for a key to all the mystery?

43. These powers of life are only transient; beginning, however, at
an unknown period, their operation continues through a vicissitude
of change.   In some structures it endures only for a day, in others it
lasts for ages; but whether ultimately worn down and spent by a long
continuance of exertion, or overcome by the action of molecular force,
a period at last arrives when the whole fabric, animal or vegetable,
sinks into decay.   Is it only the aggregate of functions that ceases, or
do the force giving atoms themselves die?   Is that immortality that
God has given to the chemical elements extended also to their modes
of action, when in union with one another?   The duration of the im-

perishable atom has not a limit, and time and circumstance leave it unchanged; at one moment it puts on the organic, at another the unorganized form; whilst its essence continues the same, all things proclaim that its functions are mortal.

44. The fabric of a membrane which shall last in a healthy condition for an unlimited period of years, is, however, of a more complex character than that here pointed out. Subject, from the state of force in which it is placed, to hourly decay, it would soon be unable to perform its appointed task, were it not continually renewed. A dead membrane, in a very short time, becomes disorganized by the passage of liquids through it, and a living one must slowly but surely decay, by the unremitting action of the same force. To accomplish this end, a complicated vascular arrangement is bestowed upon it; veins, arteries, and lymphatics freely traverse it, and to give it that sensibility which distinguishes an animal from a vegetable, a nervous net is spent upon it.

45. As yet, we do not know under what circumstances vesicles are formed. Whether or not they result from laws analogous to those which determine crystallizations. The misty vapour that rises from water, in the form which is vulgarly called steam, is perhaps the most common instance of this kind of formation. If we observe this vapour through a lens, we find that each particle is a little aqueous sac, which, by its collapse, produces a drop—perhaps, in this case, the chilling of the exterior surface of a little volume of steam, forms, by agglutination, a shell, which, by its nonconducting power, temporarily preserves the included vapour from being condensed. This shell of water, could it be secure from mechanical violence, would, without doubt, expand on exposure to certain substances, assimilate a part of them to its own structure, secrete another part into its own interior, and reject the residue; such at least is the action of a soap bubble, which is a type of all these vesicular actions. On this principle, also, we explain the formation of starch, and a variety of vegetable and animal substances. By unknown means, a little sac is formed, whose texture is of a definite kind. From the fluids to which it is exposed, this sac has the power of absorbing, and from its inner surface secreting fecula alone. These vesicular actions have a faithful representative in the action of a soap bubble.

46. The condition of chemical decomposition by ternary arrangements are such as to allow of a vast variety of results; these may depend not only on the nature of the substance exposed to decomposition, but also on the nature and structure of the barrier or bounding tissue, and likewise on the mode of the removal of the element most

3*

disposed to pass. The animal mechanism furnishes abundant instances for illustration. Blood, which is a mixture of several substances, to supply the demands of the economy, is compelled to undergo a variety of changes. Coming along the pulmonary artery loaded with carbonic acid, it moves successively past cells inflated with atmospheric air. The structure of those cells is so arranged, that whilst carbonic acid finds no difficulty in passing in one direction, at the time that oxygen moves in the other, the nitrogen is almost entirely excluded. It only remains, therefore, to provide for the expulsion or removal of the gases accumulated in the cells; this affords an instance, where a mechanical operation is resorted to. Now, it is conceivable that the air cells might have had such a texture, as to have allowed nitrogen to pass through, and rejected oxygen. Or, other means than those merely mechanical, might have been resorted to, to effect the removal of the effete gaseous matter filling the cells. In the kidneys there is an arrangement of this kind, the urine being thrown into the ureter by the direct action of the walls of the tubuli uriniferi, the mechanical force of muscular contraction being afterwards exerted to remove it from the bladder, where it collects. The motion also of the bile, in the ramifications of the biliary ducts, (pori biliarii,) and probably the phenomena of the portal circulation depend on this tissue action. Nor is it a force incompetent to perform all that the animal mechanism demands, the action of a similar membrane is able in the case of vegetable life, to throw up sap under a pressure of not less than three atmospheres.

47. Haller remarked, that if ever the secret of glandular action was discovered it would probably first occur in the case of the kidneys. The specific action which he assumed, as a property of every secreting organ, has much light thrown upon it by what we now know to be effected when change of structure takes place in an acting tissue. Thus, the leading experiment of Dutrochet, of the endosmosis of water into alcohol, will take place through almost any animal membrane, but a thin lamina of gum elastic, though not one-tenth the thickness of such membranes, and even more transparent, entirely prevents the occurrence of any such phenomenon. Now, it has happened, in the case of the lungs, that the general progress of science has taught us, under what condition venous blood was brought into their structure, what it gave off, and what it received in passing the air cells, and what is the constitutional difference between it and arterial blood. We know that carbonic acid is contained in the venous blood, and oxygen in the arterial; we also know how this change is brought about; but not so with the liver or the kidneys. Would the

mixture of the blood of the emulgent veins, with a due quantity of urine, produce aortic blood, or blood like that of the emulgent arteries? Certainly, it should follow, if glandular action is explicable on these principles of absorption.

48. To determine the condition of the blood, in all the great venous trunks, is a problem of the utmost importance, in giving an explanation of secerning action. The blood of the splenic veins cannot be the same as that coming from the extremity in the saphena; the same applies to emulgent and mesenteric blood; yet, after this visceral blood has gone through the liver, and got into the ascending cava, we have no reason to suppose it is different from that in the descending cava; this remarkable change has, therefore, been impressed upon it during its portal circulation. There are many facts which would tend to show that the primary action of the liver is to accomplish this end, to bring the visceral blood to the same chemical constitution as that coming from the extremities, and, therefore, fit it for the subsequent arterializing action of the lungs.

49. There are some curious physical phenomena which will occur in repeating these experiments, on the action of thin films, in relation to the colours they assume, especially when acted on by ammoniacal gas. It has been remarked, that a very minute soap bubble, the diameter of which does not exceed a quarter of an inch, as soon as it is immersed in an atmosphere of ammonia, becomes dyed with the richest colours; on taking it out from that atmosphere and exposing it to the free air it loses its colour and again becomes white. Bubbles of a larger class, as those of more than two inches in diameter, exhibit also a surprising permanency of tint; above there may be a blush of pink, and on the under part a fair green; and this will continue for a long time without any kind of change. It may be proper to add, that, during the action of absorption, these bubbles exert no action on a beam of polarized light.

50. By referring the phenomenon of endosmosis to absorption, such as has been recognised by chemists, we advance one point in the simplification of our knowledge. It gives us also a better idea of the specific action of tissues, as depending on structural arrangement, and presents an intricate problem in its easiest form for solution; moreover, it is, as I know by experience, a safe guide in experimental research. We can hardly doubt that the forces bringing about the result indicated in (25) are the same as those which operate in Dr. Mitchell's experiment, where India rubber is used as a barrier; and if that result receives so ample and so easy an explanation upon this doctrine, why should we hesitate to apply it to the other. But the

composition, structure, and habitudes of a thin, watery film, are much better known than those of a lamina of India rubber,—we can reason with certainty respecting the one, and vary its composition to suit the purposes of experiment; the other affords no such advantage.   If, however, it should eventually be found that the simple doctrine of absorption is not sufficient to explain all the phenomena of endosmosis that may hereafter be discovered, this paper will at least prove, that the cause of those phenomena are not alone enjoyed by *organic* and *solid* tissues, but also by *liquids* and *substances without organization.*

ART. II.   *Cases, with Remarks.*   By ASHBEL SMITH, M. D., of Salisbury, N. Carolina.

CASE I.—*Fungus Hæmatodes of the Eye—Extirpation—Not the slightest return of the disease since the operation, which was performed upwards of twelve months ago.*—York, a servant belonging to J. M. Roberts, Esq. was sent to me to be operated on for fungus hæmatodes of the right eye; of whom his master wrote me the following account:—"When York was *six months* old, a *white speck* first appeared in the sight of the eye, and continued gradually increasing and spreading, from that period until the last time I saw him.   He is now ten years old.   As to the family of York, he is the only one that has ever been attacked with a cancer, as far as I can learn."   The patient arrived Oct. 16, 1834, and I operated the 7th of the following month.   During this interval, a period of about three weeks, the tumour increased noticeably, and was at times very painful, especially at night.   At the date of the operation, its circumference measured nine inches, embracing the eyelids, and it projected about one inch in front of the superciliary ridge.   By its pressure, the whole of the right side of the face and nose was apparently enlarged and distorted. The tumour, externally, was tolerably smooth and irregularly hemispherical: its surface was very vascular, of a darkish red colour, here and there interspersed with a few paler, and other nearly livid spots; a small thin scab, with a little muco-purulent matter, commonly rested on the most exposed portions of it; it was peculiarly soft and elastic to the feel, especially at one point on its upper limb, where it gave to the finger the sensation of a fluid, covered only by a thin membrane: according to the patient, it was subject to bleed occasionally, though it did not appear to me extremely prone to take on

hæmorrhagic action: it was painful on being handled, and the patient sometimes (chiefly at night) complained, when no external cause had approached it. The eyelids were excessively stretched and covered about one-half the surface of the fungus, which projected between them: they were free from disease, except that the glands of Meibomius furnished a secretion rather more abundant and viscid than in their perfectly healthy condition. A few tears occasionally ran down over the cheek, whence I concluded the lachrymal gland was not greatly diseased. There was no trace visible of the original structure of the globe of the eye, except of the conjunctiva reflected from the upper lid over a small portion of the fungus. A single lymphatic gland lying on the parotid of the right side, somewhat tumefied, and painful on being handled, was the only glandular enlargement I discovered, unless I include a slight puffiness of the parotid itself. The skin, for a considerable extent about the tumour, had the peculiar discoloration of the cancerous cachexy strongly marked. The general health of the patient was tolerably good; he is sufficiently intelligent for his age and condition, and was anxious for the operation to be performed.

Nov. 7th, 1834.—The fungus was extirpated in the usual manner. After preparation, by attention to the diet and bowels for some days previously, the patient was firmly confined on his back, with his head somewhat elevated and supported by Dr. B. The lids were freely divided at their external and internal commissures, and dissected off from the tumour. On attempting to dissect the fungus from its adhesions to the edge of the orbit, there was a *furious* hæmorrhage. Immediately thereupon, a very narrow, curved, probe-pointed bistoury was introduced at the inner canthus, deep into the orbit, and in contact with the orbitar plate of the ethmoid bone, and thence carried along the floor of the orbit to the outer canthus, Dr. B. meanwhile elevating the tumour with his fingers,—the incision was thence continued along the upper portion of the orbit, while the tumour was depressed, to the point where the knife was introduced. A slight adhesion, consisting mostly of the optic nerve, was readily divided. The removal of a small portion or two of the tumour and of the lachrymal gland left the orbit clear of every thing but its periosteum. The profuse hæmorrhage ceased in a good degree on the separation of the fungus; but the ophthalmic artery and some twigs near the nose still bled pretty freely; they were readily checked by torsion and compression for a few minutes. The socket was filled with lint, impacted with moderate firmness, and covered with a bandage, and the

patient put in bed. The next day he was permitted to walk about the house.

The subsequent treatment consisted in the occasional use of a saline purgative, and in restricting the patient to a vegetable diet for the five months that he remained at my house. I confined him to the use of *corn-bread* and *water, alone,* forbidding even all preparations of wheat, as far as was practicable. The only local application was filling the socket with dry lint, so as to make moderately firm compression on its parietes. Healthy granulations formed, and the orbit was filled very gradually, nearly to a level with its border, when the reparative process ceased. The lids contracted, slowly, to nearly their normal dimensions, and closed the aperture. The divisions of their commissures healed evenly, without any suture having been employed. No unhealthy granulations or fungous sprouting occurred to interrupt the cure. A letter from Col. Roberts, dated Nov. 22, 1835, upwards of a year after the operation, says:—"York is well, and has been so since he left you. His eye has the appearance of continuing well, and he (i. e. York) says he receives no pain whatever from it."

I am disposed to attribute no inconsiderable influence on the successful progress of this case to the moderate compression exerted by the dressings upon the granulating surfaces of the wound. Mr. Lawrence used to disapprove of filling the socket with lint, &c., an opinion which appears to me quite untenable, since the researches of Recamier have shown the effects of compression, not only in retarding, but even in curing morbid growths. Much, also, I think, is to be assigned to his diet, which was almost entirely of corn-bread and mush. Of the salutary effects of Indian corn,* as a constant article of food, I entertain at the present time a high opinion; whether a more extended observation will confirm it, I do not know.

An incision was made into the tumour after its removal. It was a tolerably firm substance, of a reddish colour, and presented no traces of the normal tissues of the eye, except the sclerotic coat, which was crowded to one side, and lying between the tumour and the adjacent

---

*The mention of Indian corn, leads me to state here a circumstance, not indeed connected with the present case, but of considerable interest, if I am right in my conjecture as to its cause. Calculous affections are of not unfrequent occurrence among the whites in this section of country. But, neither have I nor my medical brethren here, of whom I have made inquiry, known a case of calculus of the bladder in a negro in these parts. Indian corn is the almost universal bread-stuff on the plantations, together with a liberal allowance of meat, chiefly bacon, and game, as is used by their masters. Is this exemption from calculous disease attributable to their general use of Indian corn?

loose cellular membrane. The tumour contained a considerable quantity of fluid blood, and in its structure consisted of that vascular or fibro-vascular network, denominated *accidental erectile tissue,* or *fungus hæmatodes,* strictly speaking. The blood was washed, without much difficulty, out of the surfaces of the incision, which then assumed a dirty pearl colour, with a slightly reddish tinge, and exhibited, generally, the appearance of areolar tissue. Some portions, however, were more dense than others, so as to give the whole an irregularly striated appearance. The striæ or denser portions resemble what Laennec has rather incorrectly denominated *crude encephaloid tissue.*

So generally has fungus hæmatodes been regarded as connected essentially with some constitutional taint, and as almost certain to break out afresh after the removal of the local disease, that even in the few cases of alleged complete recovery after an operation, a doubt has arisen, whether the operators might not have been mistaken as to the nature of the tumours. For this reason, I have used especial pains to determine the real character of the tumour in the case I have related. Dr. J. Burns, who has witnessed undoubted cases of fungus hæmatodes terminating fatally, Dr. Lueco Mitchell, an excellent and experienced surgeon, and others, were clear as to the hæmatodal nature of the tumour; and my own observation in this disease, which has not been limited, left me in no doubt on this point previously to the operation. And this opinion was confirmed by the subsequent examination of the tumour, if the doctrines advanced by Andral, Velpeau, and others on the nature and pathology of fungus hæmatodes be correct. It may not, however, be amiss to observe here, that the substitution of the term *medullary* fungus for that of fungus *hæmatodes,* by several authors, seems to imply, that they regard as an *essential* characteristic of this disease, the presence of *softened encephaloid matter,* a substance which did not exist in any considerable masses, if at all, in the fungus I extirpated. On a late examination of this tumour, which has been preserved in alcohol, I obtained several particles of a moderately firm cerebriform consistence, varying in size from the head of a pin to very small shot. I believe, however, they were only fibrinous coagula deprived of colouring matter.

In the case above related, the disease commenced within the globe of the eye, after the usual manner of fungus hæmatodes of this organ as described by Scarpa and others; it subsequently presented the symptoms and external appearances with the circumstances of age, &c. so commonly observed in this affection; it was clearly of a malignant character; that is, instead of disappearing or remaining indolent, it showed a decided tendency to invade the surrounding tissues, and

eventually to destroy life. Will the presence or absence of cerebriform matter assist us in our prognosis after an operation in this disease?

According to most writers on this disease, "the morbid growth itself has, in almost every instance, the appearance of medullary matter;" (Frick;) but those pathological views which refer "all the morbid appearances to the effects of a *medullary* growth from the optic nerve" (Mackenzie) to a sort of hypertrophy of the nervous tissue, as I understand the expression, seem to me very defective and quite incorrect. (After a few quotations,) I will briefly relate another case, which appears to me to throw some light on the nature of erectile and medullary tumours; and the changes which take place in their anatomical elements.

Velpeau (Med. Operatoire I. 783, on Extirpation of the Eye) remarks: " * * * *fungus hæmatodes*, a mixture of encephaloid, erectile, colloid, melanic tissues, or one of these substances, *alone*, almost always forms the disease."

Weller, a pupil of Beer, who treated of this disease under the name of *fungus medullaris retinæ*, relates a fatal case, (Diseases of the Eyes, vol. ii. 286-7 of French translation,) very similar in appearance, &c. to that of York. " * * The retina appeared at the bottom of the eye, like a concave plate, of silver. The eye was sightless, but indolent, and the patient, in other respects, in good health. * * * About three months before the death of the patient, this eye, which had been some time sensible, *rapidly increased in volume, projected between the eyelids, under the formæ*, of a *red mass, and finally acquired the size of a large apple.*" * * "An incision into the tumour after death, showed it to consist of a *firm fibro-vascular mass*, in which were no traces of the primitive organization of the parts," &c.

I have cited the *obiter dictum* of Velpeau, an accurate medical *litterateur*, and some points of the case related by Weller, without attaching an importance to them, except showing that cerebriform matter is not considered an essential constituent of hæmatodal tumours of the eye. But it is to Andral that we are indebted for the most sound, philosophical, and comprehensive views on morbid growths, in the present state of science.

The most obvious, and, at first blush, the most philosophical classification of tumours, would be one founded on their anatomical structure. But its defectiveness appears, when we find the same pathological process operating a variety of changes in the component parts of a morbid growth, with only a slight diversity in the symptoms, external appearances, or termination of the disease. The erectile, the scirrhous, the soft encephaloid tissues co-exist in the same tumour, which is

named after that tissue which predominates. Is the nature of the tumour changed, if, as frequently happens, it becomes mostly a mere mass of cerebriform matter?

"We might," says Andral, "multiply at will the number of species of these morbid productions, if to every variety of appearance it be deemed necessary to give a particular name. Laennec has done this, for one, in calling it encephaloid matter. But this creation of species, is, in my opinion, unphilosophical and useless to science. Of what importance are appearances here? That which is important, is to know, that, notwithstanding the diversity of appearances of these productions, they are all identically of the same nature, &c. *Precis d'Anatomie Pathologique,* i. 385. He regards the scirrhous and encephaloid tissues "as merely shades of the same morbid alteration, to wit, hypertrophy of the cellular tissue, existing either alone or united with some product of morbid secretion in the laminæ of this tissue." *Ibid,* i. 168. Fungus hæmatodes is a generic term, including several anatomical elements. "In the interior of this vascular development, (fungus hæmatodes or accidental erectile tissue,) other lesions of nutrition or secretion may take place. Thus, in more than one fungus hæmatodes, together with the very remarkable vascular network which constituted their basis, there have been found divers morbid productions, fibrous masses, scirrhus, pus, melanose matter," &c. *Ibid,* i. 178, 499.

As connected with this subject, I subjoin the following case of a malignant growth in a female breast:

CASE II. *Malignant Tumour of the Breast.*—I have before me a malignant tumour in a female breast, which I amputated a few weeks since. The tumour is supposed to have been occasioned by a slight bruise, upwards of a year ago; it was seated above and a little to the outside of the nipple; quite prominent, and somewhat larger than a hen's egg. When I first saw it, seven weeks before its removal, it was painful, of a darkish red colour, with the soft, elastic feel, common to erectile tumours, giving under the finger the sensation of a fluid, so distinctly, that a physician of much practice had lanced it, in expectation of finding matter; blood only flowed. The accidental abrasion of the skin on its surface to a considerable extent, about two weeks after I first saw it, exposed a surface which bled easily and freely, and which, on close examination, appeared to me to be accidental erectile tissue, quite similar to the fungus of York. Subsequently, small pimples, about the size of a pin's head, of a dirty yellowish-white colour, resembling pimples of the face when mature, appeared over the surface of the tumour. The patient, on picking some of them open, got a small quantity of hard curdy matter. These pimples did not disappear, but increased, though very slowly, and

new ones made their appearance.   About the same period, the tumour, which had not increased in bulk noticeably, was gradually losing its soft elastic feel; and, at the time of its removal, some parts had acquired a scirrhous hardness.   The appearance and increase of these pimples were synchronous with the commencing and increasing hardness of the tumour.   Ulceration was just commencing when I amputated the breast.   The tumour consisted of erectile tissue, tissu lardacé or scirrhous tissue, and *soft encephaloid* or *medullary* matter.   The pimples were the extremities of masses of the *medullary matter*, which constituted about half of the entire tumour.   The tissue *lardacé* was arranged in *striæ*.   I could discover no difference between the portions of the erectile tissue in this tumour and that of the eye described above.

At the time I first saw this tumour, it consisted, I believe, almost wholly of erectile tissue.   This, in parts, gave place to, or was converted into scirrhous or crude encephaloid tissue of Laennec, about the same time that a deposition of cerebriform or encephaloid matter, rightly so called, was going on.   It may be observed that the encephaloid matter existed as a foreign body in the tumour; for the ulcerative process rapidly succeeded on its deposition, thus completing the last step to the tumour's becoming an open cancer.

The changes that occurred in the principal anatomical elements of this morbid growth, after it came under my inspection, were to me satisfactorily ascertained.   Whether it be more philosophical to consider the tumour as being of the same nature in its different states, or to regard the deposition of the medullary matter and the consequent incipient ulceration as operating a change in its nature, I will not venture to determine.

Salisbury, N. C.

Art. III. *Case of apparent Fallopian Menstrual Secretion.*   By F. W. Adams, M. D., of Montpelier, Vermont.

Pathological facts, characterized by novelty and accuracy, are never valueless; nor can they fail to excite an intense interest with the ardent inquirer, whenever they are adapted to the illustration of disputed or undiscovered principles of functional phenomena.

However familiar the phenomena of the following case may be to others, to me they possess, at least, the interest of novelty, and, in

that character, I would present them as not altogether unworthy the consideration of those who are delighted with medical research.

Mrs. M. L. E., aged 38 years, came under my observation in the spring of 1834, a few months antecedent to her decease. She presents a form of more than ordinary physical delicacy; great emaciation; literal extinction of muscular strength; general morbid increase of nervous irritability. She experiences constant sense of fulness, weight and excruciating pain, when not under the influence of an anodyne, uniformly referred to the inferior lumbar and pelvic regions; general loss of appetite, with constipation and slight tumefaction and tenderness of the abdomen; frequent faintness, nausea, and occasional vomiting; her tongue is dry, and moderately furred; pulse small, hard, and frequent; head inclined to dizziness, intellect undisturbed; uterus sensibly enlarged, hard and uniform to the feel, neck and os tincæ apparently obliterated, sensibility moderate, with a vaginal excess; catamenia have been absent during more than nine preceding years, with a troublesome chlorosis during most of the same period.

The following comprises all the previous history of the case which I have been enabled to obtain. Constitution naturally delicate, health feeble and vacillating from birth to puberty, after which, though strongly marked by instability, it was somewhat improved to the age of twenty-nine, at which period occurred the birth of her second and last child. Delivery was immediately succeeded by all the usual phenomena of acute hysteritis in its aggravated form, from which recovery was exceedingly slow and imperfect. Her health, however, after the lapse of several months, so far improved, as to enable her to resume moderately and intermittingly her domestic employments, which were continued with greater or less embarrassment until within about two years of her death.

A few months subsequently to the commencement of convalescence, and whilst a slowly progressive amendment seemed to promise the re-establishment of former health, a recurrence of the symptoms of menstruation appeared to confirm the accuracy of a favourable prognosis. The nonappearance of menstrual secretion, however, suggested a doubt of their normal character, and yet their semblance, succession, and periodicity appeared to identify them so unequivocally with those of health, that artificial means were promptly and confidently adopted for the assistance of nature in her ineffectual efforts to re-establish the desirable phenomenon of menstruation.

The effects of these prescriptions were, however, so evidently injurious that they were finally abandoned.

Various treatment, both regular and empirical, mostly, however, calculated to increase nervous irritability and vascular excitement, was subsequently adopted and rejected, until at length patience being exhausted by unpropitious trials, opium was ultimately resorted to, and with advantage to the patient.

During this period, which included several years, the paroxysms denoting a uterine effort, though constantly increasing in intensity, were not only strictly periodical, but for a long time preserved a uniformity of interval identical with that of normal menstruation.

At length, however, those intervals were distinctly shortened, so that, by the termination of half a dozen years, they had gradually exchanged their monthly for a semi-monthly type, becoming meanwhile strongly inclined to relinquish the uniformity which had hitherto characterized them. The paroxysms, likewise, became not only variable, occupying in their progress all the intermediate periods, from four or five to eight or ten days, until finally, as I before remarked, they became a continuous series of excruciating distress, when not alleviated by full doses of opium, or some other narcotic.

Having arrived at the period at which I was first introduced to the patient, I will not suppress an acknowledgment of my surprise at the extremely anomalous character of the case as presented by its phases and history.

Among the complicated phenomena indicative of functional and organic derangement, those of apparent uterine irritation had uniformly predominated; and yet, whatever secretion had occurred from the vagina, though its appearance might not unfrequently have nearly justified its being mistaken for a purulent uterine production, was, nevertheless, exclusively chlorotic; nor was there present either acute sensibility, dilatation, tumefaction, or inequality of the os uteri to induce a belief that this part was affected with carcinoma.

Henceforward, the patient was kept as comfortable as opium, hyosciamus, cicuta, and occasional laxatives could render her, until near the first of October, 1834, at which time her death occurred, under the following very peculiar circumstances. About a week previous to her death, a sense of sudden rupture in the left lumbar region, connected with that of the descent of a liquid into the lower part of the pelvis, produced in the patient an alarm, which, aggravated by extreme distress, was nearly equivalent to the sudden extinction of life.

The left labium pudendi was immediately formed into a dark purple tumour, considerably exceeding the size of a goose-egg, attended with extreme pain and anxiety. This was punctured within a few hours of its appearance, and afforded, perhaps, half or two-thirds of a

pint of semi-viscid, uncoagulable, peculiarly and offensively odorous, purplish-black or tar-coloured, homogeneous liquid, which, in all its visible qualities, presented a perfect similarity to menstrual fluid, which has been long retained by an imperforate vagina.

In the course of the second day, the puncture having closed, the tumour reappeared, presenting its former character, save the diminished quantity of its discharge.

The supervention of acute peritonitis was recognised only by moderately increased tenderness and tumefaction of the abdomen, the countenance having been, from the moment of exacerbation, entirely cadaverous, and the pulse scarcely perceptible, during the few days previous to life becoming extinct.

After much importunity, amply justified by the peculiarities of the case, the consent of the husband was obtained to a partial autopsy of the parts supposed to be the seat of the disease. These presented, on exposure, the following abnormal appearances: Pelvic and inferior part of the abdominal cavities, with their contained organs, stained, nearly the colour of impure molasses, evidently by suffusion of the before-mentioned liquid, a quantity of which was yet remaining in all the lesser excavations of those cavities, and in a ruptured sac which had, doubtless, afforded the material of the pudendal tumour. This sac, which, unruptured, might have contained a pint or more, occupied the site of the left fallopian tube, being attached to the body of the uterus by its internal extremity, whilst its external appeared loose in the abdomen.

On the right side, corresponding in situation and character with the one already mentioned, was an unruptured sac, presenting itself in the form of an oblong curved, pyramidal, dark-purple tumour, with its base floating at the ilium, and its apex attached to the uterus, containing at least two-thirds of a pint of liquid, in all respects identical with that previously evacuated from the labium pudendi. The uterus was about the size of an adult fist, nearly globular; neck extinct; structure slightly abnormal, being somewhat paler and harder, and offering a less leathery resistance to the scalpel than the healthy, unimpregnated organ, with an obliteration of its former cavity, from an amalgamation of its parietes, so complete as not to present even a cicatrix to denote the fact or situation of its previous existence; left ovarium unrecognised, and right nearly obliterated; numerous marks of gangrene upon the intestinal peritoneum; little or no lymphatic or serous effusion or superficial adhesions; thickness of parietes of right sac somewhat greater than of the left, and in both much exceeding their natural state. The foregoing is the result of the very partial examination

4*

to which I was permitted, and which appears amply to have developed the character of the case.

I am aware that very great enlargement of the fallopian tubes from extra-uterine embryotic lodgment, perhaps much exceeding that of the present instance, has too frequently recurred to continue a subject of surprise, nor would I present the obliteration of the uterine cavity as altogether unique; but I am ignorant of any other example of their concurrence in the same case.

That cases similar to the above have never been noticed by others, is not to be inferred from their description having either evaded my observation, escaped my recollection, or been withheld from publication, yet an opinion of their infrequency is, doubtless, justified by the poverty of our records upon this subject. In respect, therefore, to the lining membrane of the fallopian tubes having assumed the secretory function of that of the uterus, the case under consideration, whose characteristics were too palpable to have been overlooked or mistaken, may claim to be novel, with the mass of the profession at least. That the sacs above described, were constituted of the fallopian tubes, scepticism could have found no excuse to doubt; and that their contents were a secretion from their lining membrane, substituted for, and possessing the characteristics of the menstrual fluid, seems the only conclusion deducible from the premises which anatomical facts or physiological principles can justify.

In this case we are presented with acute uterine inflammation, productive of erosion of its mucous tissue and subsequent adhesion, extending its depredations, however, little further than the secreting surface.

Notwithstanding menstrual secretion may have been organically and exclusively assigned to the uterine-mucous membrane, yet it is not incompatible with the aptitude of nature to adopt expedients in cases of emergency, that this membrane having been obliterated in the progress of disease, the nearest in analogy should hence become its functional substitute, which, undoubtedly, is the lining membrane of the fallopian tubes.

This, therefore, with all its peculiarities is only one of the numerous instances already recognised, in which nature has substituted in the animal economy one organ for another, by modification or development of function.

When contemplated in an isolated condition, this case may seem to promise but little pathologically to the improvement of medical philosophy, on account of its apparently inevitable fatality. Yet, while analogy shall be associated with the rules of reflection, cases of no

more magnitude than the present may perhaps deserve a place amongst
the records of professional facts, to which subsequent reference can
be conveniently made, and with which future occurrences may be
usefully compared.

My object being, however, fully accomplished in its simple pre-
sentation, I will refrain from further intrusion of my own conceits of
the case, leaving it and its legitimate suggestions with the medical
public.

Montpelier, Vt., Feb. 1836.

ART. IV. *Case of Inguinal Aneurism, in which the Right External
Iliac Artery was successfully tied.* By WM. H. RUAN, M. D., of
St. Croix, West Indies.

St. Croix, June 19*th*, 1835.—Lucas Dogherty, (mulatto,) æt. 48
years, belonging to Gen. Von Söbötker, of spare habit of body, and of
a bilious, melancholic temperament, observed about five weeks ago, a
small pulsating tumour high up in the right groin, which rapidly in-
creased in size, and brought on swelling of the whole limb of that side,
accompanied by severe lancinating pains proceeding in a spiral direc-
tion down the thigh, and into the leg and foot. This tumour was sup-
posed by the patient to be an abscess forming in the groin, and treated
by him with hot poultices and fomentations. In order to relieve the
swelling and lancinating pains of the thigh and leg, he had applied
several blisters, at different times, to the limb. Having experienced
no relief, he requested, about a week ago, to see me. I visited him,
accordingly, and found a large aneurismal tumour in the right groin,
immediately below Poupart's ligament, pulsating furiously over an
extensive surface, which, when the hand was applied over it, commu-
nicated a peculiar whizzing sensation. The whole limb was much
swollen, with considerable venous congestion. The tumour could be
handled freely, without occasioning much uneasiness to the patient;
and its pulsations could be stopped by pressing firmly on the artery,
immediately above Poupart's ligament.

The patient has laboured under bilious attacks frequently; the last
about six months ago, when he was completely jaundiced. Until
within the last twelve months, he has been subject to frequent attacks
of gout.

On my first visit I directed cold applications to be made to the
tumour and whole of the limb, with the occasional use of purgatives,

so as to procure three or four evacuations daily. On the 17th, I saw him for the second time, along with Dr. Jacobs, and found him much in the same condition as at first, with the exception that there was less venous congestion of the limb, and that the tumour appeared to elevate Poupart's ligament considerably. Having explained to the patient the hopelessness of his case, if left to itself, or if treated in any other way than by an operation, he consented to undergo the latter. As he appeared somewhat weaker than at my former visit, we directed him to cease the use of purgatives, to continue the cold applications to the limb, and to take more animal food.

I saw him, for the third time, to-day, (June 19th.) His strength, he thinks, is somewhat restored, and he is anxious to submit to the operation. I measured the dimensions of the limb, by passing a piece of twine around it, over the tumour, and above the trochanter major; and, on comparing this measurement with a similar one of the healthy thigh, I found a difference of exactly five inches.

June 21st, 1835.—Assisted by Dr. Jacobs, and in the presence of Drs. Roebuck and J. Von Bretton, I this day performed the operation of passing a ligature around the right external iliac artery. I made the first incision through the skin and subcutaneous cellular substance, commencing about one inch above the superior anterior spinous process of the ilium and an inch and a half on the inside of it, carrying it down with a very slight curve to the right of the patient, and terminating above the upper edge of Poupart's ligament at about half an inch on the outside of the course of the artery; thus making a cut of about three inches in length. The tendon of the external oblique muscle being next divided through the length of the first incision, the fibres of the internal oblique muscle were exposed. These were partially divided at the lower portion of the incision by the knife, and pushed upwards by the finger. I next inserted my finger between the peritoneum and superincumbent transversus abdominis muscle and the remaining fibres of the internal oblique, and with a curved bistoury divided these upwards. By pushing the peritoneum upwards, I readily felt the external iliac artery beating strongly. I experienced some difficulty in separating the fibres of the fascia propria of the vessels, so as to disengage a portion of the artery from the continuous vein; but by a little perseverance with the nails of my fore fingers and the handle of a scalpel, I accomplished it; and, with an ordinary aneurismal needle, I then passed a strong ligature around it, and tied it firmly. The pulsation of the tumour, of course, immediately stopped. The ligature consisted of a strong lint thread, doubled and waxed; and was passed under the artery from the out to the inside of

it; this mode being found, in the present case, to be the most easy. Care had been taken, during the operation, to disturb the peritoneum as little as possible. No small arteries bled, and the patient did not lose more than a couple of table-spoonsful of blood from a small superficial venous twig which had been wounded, and which retracted and ceased to bleed on being entirely cut across.

The ligature was allowed to hang out at the lower end of the wound, the edges of which were kept together by a single stitch and two strips of adhesive plaster. Finally, a firm compress and bandage were applied.

The temperature of the limb rose, immediately after the operation, considerably above that of the opposite side. My prescriptions were a diet of animal food principally, two glasses of wine in the course of the afternoon, and applications of bottles of warm water on each side of the limb through its whole length, and to the sole of the foot.

June 22nd.—The patient has slept well. He says that he enjoyed more refreshing sleep in the course of last night than he had done during the whole of the preceding week. Pulse 108, but soft and natural in other respects. Has been entirely free from pain in the limb and everywhere else. The sensation of the limb does not appear to be diminished; its temperature is considerably higher than that of any other part of his body. Bowels have been confined during two days. Continue the same diet, and warm applications to the limb; and procure one or two stools by means of laxative injections.

It would be too tedious and unprofitable a task to repeat here all the reports of the case which I have entered in my note-book. I shall, therefore, more concisely state, that my patient continued to do well. On the 24th of June he had two large evacuations of blood from hæmorrhoids, an attack to which he has been subject for many years at this season of each year. The aneurismal tumour gradually diminished; the pulse soon came down to the natural standard; the temperature of the limb became the same as that of the other parts of the body; and on the twenty-fourth day after the operation, the ligature came away very easily. At the first dressing of the wound, it was found healed throughout its two upper thirds. About two drachms of healthy pus were discharged daily from its lower third, until it finally healed up entirely.

On the 10th of October last I met my patient walking about on the estate where he lives. He informed me that for some weeks past there had not existed the slightest remnant of the tumour in his right groin; that the limb of that side had long since acquired an equal

degree of strength with that of the opposite side, and that he had been
working at his trade (that of a saddler) for upwards of a month.

St. Croix, January, 1836.

Art. V. *Remarkable instance of a Brass Nail remaining in the
Lungs more than a year.* By Amariah Brigham, M. D.

Miss A. Lyman, aged five years, while playing at school, in May,
1823, was suddenly seized with violent and convulsive coughing and
vomiting, supposed to be caused by swallowing, with great difficulty,
some large substance. On recovering sufficiently to talk, she stated,
that, at the time she was seized with coughing, she had a brass nail,
such as is used in covering trunks, in her mouth, that it got into her
throat, but that she had actually swallowed it, she could not say. The
late Dr. Cogswell, of this city, saw her immediately, and advised a
dose of castor oil. The cough continued severe for a few days, and
then greatly subsided, and her friends and physician were of the opi-
nion that it originated from the irritation excited by the nail passing
the œsophagus.

Nine months after this occurrence she went into the country. I
then saw her, for the first time, and, though she had some cough, her
health was tolerably good, as she was able to attend school.

In May, 1824, one year from the time of the occurrence at school,
she apparently took cold, which was speedily followed by increased
cough, expectoration, and hæmoptysis. Hectic fever, night sweats, and
the usual symptoms witnessed in the last stage of phthisis pulmonalis
soon ensued. As she was of slender form, and her mother had died
of consumption soon after the birth of this child, I supposed this was
her complaint. She died June 1st, 1824. At the request of her friends,
who had a desire to know if the nail caused her disease, in company
with Dr. Stone of Enfield, Massachusetts, I examined the body. The
trachea appeared healthy and also the lungs on the left side, but, on
tracing the branch of wind-pipe that passed to the right lung, the lining
membrane was found somewhat inflamed, and at the fourth or fifth divi-
sion of the right bronchial tube, more than one inch from the bifurca-
tion of the trachea, was found a common brass nail, half an inch long,
with a head nearly the same in diameter.   It was coloured black, but
not in the least corroded, and appeared to be firmly fixed at one of the
divisions of the bronchi. As there was no channel from the nail to
any other part of the lungs, it had not probably changed its place.

There was some distension of the blood-vessels around it, but not so much apparent disorder immediately where the nail was found, as in the substance or rather the outer parts of the right lung, which adhered extensively to the adjacent parts, and contained several large abscesses that discharged pus into the bronchi by fistulous passages.

I know of but few cases on record where so large a substance had passed into the lungs and remained so long a time without proving fatal. My greatest surprise, however, is, that such a substance was enabled to pass so far into the lungs of a child but five years old. After it had passed to where it was found, the left lung remaining unaffected and a portion of the right also, respiration could, of course, be maintained without great difficulty.

M. Sue relates the case of a girl eight years of age, who, in swallowing a piece of pigeon, became affected with cough, and in a manner as if something had passed into the trachea. Eighteen years and six months after this, in a paroxysm of violent coughing, she expectorated a piece of pigeon bone. She died, however, of consumption, one year after this. M. Broussais has published a case of chronic pneumonia, caused by a ball which remained in the lungs for seven years. M. Louis mentions a case of a merchant in whose trachea, at the origin of the bronchia, a piece of gold remained fixed for four years, without causing much inconvenience, except when he was in a horizontal posture. It finally produced ulceration, and the patient died of phthisis. Dupuytren saw a similar case.

Hartford, Ct., January 1, 1836.

Art. VI. *Clinical Report of Cases treated in the Marine Hospital, Charleston, S. C.* By W. G. Ramsay, M. D.

Clinical reports of hospital cases, where the history and treatment of the different diseases are faithfully detailed, have always been viewed as interesting and instructive. Having charge of the Marine Hospital lately erected in this city, I propose to give reports of some of the most interesting cases from my note book.

The Charleston Marine Hospital was built by the United States government, in 1832. It is a commodious and airy building, fronting the west, and has double piazzas to the north, south and west, which are appropriated to the use of the patients. The front part of the building is occupied by the steward and his family. There are eight wards—three on the first floor, for surgical cases, and five on the

second floor, one for venereal cases and four for medical cases.   This institution is exclusively for seamen, both American and foreign; the former are admitted by the collector of the port, who pays into the city treasury sixty cents per day for each seaman, who has a protection, which proves that he has paid to the government hospital money. No American seaman is allowed to remain longer than four months in this institution; they are then considered as chronic cases, and must be sent by the collector to their native place.   Foreign seamen are admitted by the Commissioners of the institution, with the captain of the vessel or the consul as security for the payment of their board in the hospital, which is seventy-five cents per day.   The wards of this institution are open to all students of medicine visiting the city for instruction.   Having derived much advantage from the clinical instruction in the Alms-house and Hospital in Philadelphia, it has been my endeavour to render this institution a source of instruction to students prosecuting their studies in this city.   For the attainment of this end, there are clinical lectures delivered every Wednesday and Saturday mornings during the session of the colleges.   The students are also allowed to visit with the physician every morning, if they wish.   A note-book is kept, in which is accurately recorded a minute account of the history, treatment, and post mortem appearances of all cases of importance, to which all the students have access. It is to be regretted that this branch of medical instruction was formerly so much neglected.   We now fully appreciate its great importance and value.   Young men are generally under the erroneous idea that they can learn all that is necessary by reading works on the practice of medicine, without ever observing or studying diseases at the bed side.   Here they may learn, without much effort of memory, the many changes which the system undergoes when under the influence of disease.   A hospital may truly be said to be the best "text book" to the student.   It is the book of nature, which is always open before him, and from which he can draw more valuable and lasting information than by spending his life in studying the elaborate works and routine practice of *great names.*

   CASE I. *Concussion of the brain.*—John Dixon, Englishman, aged 19 years, admitted into the Marine Hospital on the morning of the 7th January, 1835. Fell the night before, in a fit of intoxication, from the forecastle into the hold, about fifteen feet.   He was taken up next morning insensible, and brought to the hospital in the following condition: intellect impaired; sensible to touch; pupils not much dilated; pulse small, 72; surface warm; ecchymosis and tumefaction of the right eye; contusion of the right side of the head.   ℞.   Cold applica-

tions to the head; mustard poultices to feet; stimulating enemata every half hour. *Afternoon.* No change; has vomited some blood; slight hæmorrhage from the nose. Continue same treatment.

8th. Restless during the night; attempted to get up; can give no account of himself. When asked where he has pain, says in his head; pupils dilated; pulse small, 74. Continue same treatment, with cups to the nape of the neck. *Afternoon.* Very restless; pulse full, 78; had frequent evacuations from enemata. R. V. S. 6 oz.; mustard fomentations to feet; cold to head.

9th. More sensible; sleeps a great deal; made to answer questions with difficulty; complains of his head; frequent evacuations; refuses to take any medicine; little or no stertorous breathing; pulse small, 60. R. Cups to nape of neck; continue applications; sol. sulph. magnes.; and infusion of senna, wine-glassful every hour.

10th. More sensible; does not sleep so much; pulse 64. Continue medicine.

15th. Much better; quite sensible. Continue cold applications to head.

20th. Discharged, cured.

CASE II. *Extensive Fracture of the Skull.*—William Jones, Englishman, aged 18 years, fell from the deck into the hold of the British barque Achilles, on June 1st, at half past 6, A. M.; height of fall about 21 feet. When taken up he was insensible, and was immediately brought into the hospital; whilst on the way thither he vomited up some blood. Admitted about 9 o'clock, A. M., presenting the following appearances. The scalp on the left parietal bone was divided to the distance of about an inch, caused by his head striking on a stone. Coughs up mucus streaked with blood; left clavicle fractured near the external extremity; complains of his back when moved; skin cool; pupils dilated; pulse weak, 100. R. Cold applications to head and enemata of salt and sulph. sodæ repeated every hour. 1, A. M. Pulse 100, not full, reaction taking place slowly; very restless; spits up blood. Continue same treatment. 4, P. M. Has vomited some blood since last visit; five injections were administered; had but one evacuation; pulse 84, full and strong; respiration very laborious; quite insensible; throat seems as if full of mucus. R. V. S. 12 oz.; pulse risen to 112; cups to temples; mustard poultice to feet; continue enemata and cold applications to head. 10, P. M. Pulse 94, irregular; had one evacuation by injection; groans very much; very restless; profuse sweat; stertorous breathing. Continue enemata and cold applications to head.

2nd, 8, A. M.—Passed a very restless night; injections were administered; had no evacuations; skin hot; pulse 134; quite insensible; groans a great deal. R. V. S. ad deliquum animi, during which operation he had a large evacuation; cups to nape of neck, 6 oz.; stimulating enemata; pulse risen to about 160.

5, P. M. Pulse 156; very weak; had frequent evacuations; comatose; about six injections were administered. R. Cups to nape of neck; 6 oz. of blood drawn; hot fomentations to feet, ice to head, and stimulating enemata.

9, P. M. Pulse scarcely perceptible; profuse sweat; skin very hot; has been very restless; at present apparently sleeping. Continue treatment. Died about 3 o'clock, A. M., next day.

Post Mortem Examination, six hours after death.—Stomach and intestines in a healthy condition; also the lungs; clavicle on the left side fractured about an inch from the sternal extremity; coronal suture opened; fracture of the skull extending from the junction of the coronal and sagittal sutures across the left parietal temporal and occipital bones through the mastoid and condyloid processes. On opening the skull, all the membranes were found congested; a large coagulum of blood between the skull and dura mater, on the side opposite the fracture; also a quantity of coagulated blood between the membranes, and also on the surface of the brain, and a large coagulum at the base of the brain. The spinal marrow not examined.

Case III. *Gastritis.*—Hassell, aged 37, native of North Carolina, of intemperate habits, states that he was taken on the 20th February with violent vomiting, for which a blister was applied to the epigastrium; admitted into the hospital on the 2nd March, with the following symptoms: vomiting; pulse weak; epigastrium tender on pressure; skin cold; thirst very great; intellect impaired; tongue dry and red; respiration laborious. R. ⅛ grain of morphium, mucilaginous enemata, and drinks of gum arabic mucilage.

March 3d. Rested pretty well; has not vomited since last visit; pulse 84; coughs a great deal. R. Morphium ⅛ grain, sub. mur. hyd. 1 gr. every four hours; cups to epigastrium, and vapour bath.

4th. Feels much better; tongue very red and dry; slept well; pulse small, 84; complains of no pain; respiration laborious; skin cool; coughs much; intellect dull; enemata operated once. Discontinue the morphium and calomel; take effervescing draughts; gum arab. mucilage for drink; enemata of flaxseed mucilage three times a day, and vapour bath.

5th. Pulse 74; slept well; no pain; some appetite; skin cool; res-

piration the same; very little thirst; tongue dry and red.   Continue same treatment.

6th. Pulse full, 78; slept well; no pain; cough the same; tongue more moist; respiration better.   Continue same treatment.

7th. Pulse 78; slept well; had three evacuations.   Beef tea, and continue same treatment.

8th. Rested well; skin warmer; tongue moist; pulse 76; had two evacuations; coughs a great deal; appetite good.   R. Gum arab. mucilage and ¼ grain acet. morphium, and effervescing draught.

9th. Pulse 86; complains of soreness in the chest; slept but little; cough the same.   Continue the mucilage and ½ gr. morphium.

10th. Complains of great pain in the side when he coughs; pulse 90; skin comfortable; tongue moist; appetite good.   Continue treatment.

11th. Pulse 76; cough less.   Continue treatment.

12th. Pulse 72; slept well; feels very weak.   Continue treatment.

13th. Convalescent.   Allowed chicken soup.

21st. Discharged, cured.

Remarks.—This case illustrates the sympathetic affection of the lungs from gastritis.   It is what has been commonly called "dyspeptic phthisis."   We can readily conceive of the nervous connexion between the stomach and the lungs, by means of the pneumo-gastric nerve causing this sympathetic affection.   This takes place in most cases of fevers.   If we overlook the true cause of the disturbance of the organs of respiration, and treat the case by stimulating expectorants, which is often done, we must necessarily aggravate the gastric disease which is the primary affection.   In the case of Hassell, the symptoms were primarily gastric, and commenced with all the evidences of such an affection.   The cough gradually abated when the affection of the stomach was subdued.

CASE IV. *Gastro-Entero-Meningitis.*—Benjamin Lawrence, aged 18, native of North Carolina, of sanguineous temperament, was admitted into the Marine Hospital, on the 1st of January, 1835, complaining of constant headach; he states that he had fever in Georgetown, during the summer.   I treated him with cups to the back of the neck, mustard pediluvia and enemata, which relieved him in a measure, but the affection of the head became intermittent; the paroxysms were very irregular; he complained of no gastric uneasiness; bowels regular.   When the attack would come on, he appeared as if distracted with a violent pain in the back part of the head; he was bled during one of these paroxysms with but little relief.   I then

treated this disease as symptomatic of gastro-intestinal inflammation, although there were no evident symptoms of such an affection, but I viewed the evidences of abdominal disease as marked by the affection of the brain. He was accordingly cupped over the abdomen, and had frequent applications of mustard poultices to the same part, pediluvia. But the paroxysms became more frequent, and of greater intensity, and he died very suddenly, as in a fit of apoplexy, on the 27th of January.

Post-mortem appearances ten hours after death—Brain.—The arachnoid and pia mater highly injected; substance of the brain firm, about half a pint of dark venous blood effused on the cerebellum. *Stomach.* Mucous membrane inflamed in patches; follicles much enlarged. *Small intestines.* Inflammation throughout the whole tract, but especially at the ilio-cœcal valve, where the inflammation had extended to ulceration. *Large intestines* in a healthy state.

Remarks.—This case is highly interesting, to show how and to what a degree gastro-intestinal inflammation can occur without any evident signs, during life, when the brain is implicated. In many cases of fever we may be lead to think that there does not exist any inflammation of the intestinal canal, because we cannot detect any of the symptoms of that affection, for when the brain becomes affected the symptoms of intestinal diseases are not apparent.

CASE V. *Peritonitis—Perforation of the Intestine.*—Osgood Merrill, aged 24, native of Maine, has been sick for a length of time, was admitted into the Marine Hospital on the 13th of June with the following symptoms: face flushed; eyes heavy; intellect impaired; drowsy; tongue covered with a white fur, and red at the edges; respiration uneasy; pulse full, 96; complains of great pain when pressure is made on the abdomen, especially in the region of the ilium; bowels have been very loose; skin warm and dry; increased heat over the abdomen. V. S. 10 oz.; mustard poultice to abdomen. 9, P. M. Has been asleep; skin moist; other symptoms the same. ℞. Gum arab. mucilage ℥vj. tinct. opii. camph. ℨij. M. table-spoonful every hour.

Sunday, 9 A. M.—Slept until about 12 o'clock, after which time he was very restless; had one evacuation; delirious; skin cool; pulse 112; drowsy; not much thirst. ℞. Cups to epigastric region, but on account of their causing great uneasiness, they were immediately removed; leeches were then applied, which drew well; gum arab. mucilage ℥vj. acet. morph. ½ gr. M. table-spoonful every hour; warm fomentations to abdomen; arrow root for diet, and enemata of flaxseed mucilage. 1, P. M. Expresses himself better; skin moist; pulse 104;

fomentations to abdomen very agreeable; had one evacuation of a watery nature. Continue same treatment. 6, P. M. Pulse 106; complains of not feeling as well as he was in the morning; great pain in the abdomen. 30 leeches to the abdomen, which drew well; continue the mucilage and morphium, also the fomentations to abdomen and mucilaginous enemata. 10, P. M. Had one evacuation, of a watery nature. At present asleep; pulse 112, and weak; skin cool and moist. Continue same treatment.

Monday, 9 A. M.—Slept until two o'clock, after which he was very restless; had one evacuation during the night; pulse 108. R. Pulv. dov. 10 grs., Sub. mur. hydr. 10 grs. Divide in 5 powders, 1 to be taken every 2 hours. 5, P.M. Had no evacuations, although five enemata were administered; pulse 134, weak; cold sweat; been very restless; great irritability of stomach; difficulty of breathing. Sinapisms of mustard and cayenne pepper to abdomen and legs. 9, P. M. Cold sweat continues; great pain in the abdomen; respiration laborious. Blisters to abdomen and legs; Sub. mur. hyd. Ɔss., Pulv. dov. Ɔss. Divide in 5 powders, take 1 every 2 hours.

Died on Tuesday, at 8, A. M.

Post Mortem Examination—10, A. M.—Body emaciated; thorax, on cutting through the cartilages of the ribs, a quantity of sero-purulent matter flowed out; the lungs were in a healthy condition. *Abdomen.* Omentum highly injected, much thickened, and adhering to the peritoneal coat of the intestines so much so as to be with difficulty separated from it; much purulent matter in the cavity of the abdomen; liver of a pale colour; natural size; stomach contained about a pint of yellow fluid; peritoneal coat injected; mucous coat not much inflamed. *Intestines.* Peritoneal coat highly inflamed, the ilium more inflamed than any other portion, and adhering to the other intestines; about two inches from the cœcum it was ulcerated through. Brain not inflamed.

Charleston, S. C.

Art. VII. *Cases of Dry Gangrene, with Remarks.* By Benjamin W. M'Cready, M. D., late Resident Physician of the New York Hospital.

The first of the following cases occurred in a patient who had been placed in one of the medical wards of the New York Hospital, on account of another complaint, and thus came under the care of the

5*

writer, at that time house physician of the Institution. The case being remarkable, both on account of some of its symptoms and of the success attending its treatment, his attention was attracted to the subject; inquiry, with the kindness of friends, furnished him with several additional facts, and he hopes their relation will not be found altogether devoid either of interest or profit.

CASE I.* James Cowan, a seaman, 38 years of age, entered the N. Y. H. on the 13th of May, 1835, labouring under a profuse ptyalism, to which he had been subjected on account of a chronic affection of the heart. His face was tumid, he was unable to protrude his tongue, and the saliva continually dribbled from his mouth; several ulcerations likewise existed under the tongue and in the posterior part of the fauces. The patient was well formed and rather stoutly built, but his countenance was perfectly pallid, the adnata remarkably clear, and his whole appearance indicative of chronic disease. His habits he acknowledged to have been for a long time grossly intemperate. Some cicatrices existed about the angle of the jaw and the upper part of the neck, probably the result of scrofulous ulceration. Under the treatment employed, Cowan recovered wholly from his salivation, and by the application of leeches to the precordial region, the affection of his heart was rendered much less troublesome. On the 14th of June he complained of intense pain in the inner part of the left thigh, which was increased by pressure; no alteration in the appearance of the part could be discovered. On the morning of the 17th the left foot was exceedingly painful, particularly in the instep and great toe. It was also observed to be mottled in parts with small spots of a light bluish colour. His general health continued unaltered. His pulse was about 80, full and soft; his tongue clean in the centre and on the edges, and covered with a whitish fur on either side. In the afternoon the foot was somewhat swollen, while the spots had increased in number, covering the sole of the foot, the instep, and the extremities of the toes. The whole foot was tender to the touch, its bottom itching, while the pains, particularly in the great toe, were agonizing. The pain in the inner part of the thigh was as violent as ever, and, in addition, the calf of his leg commenced to add to his sufferings. On the 18th, the great toe had become cold. On the 19th, the livid spots had disappeared from the sole of the foot: the pains still continued, and so excruciating were they as

---

*The case was in the first place attended by Dr. J. M. Smith, afterwards by Dr. John B. Beck, by whom the principal part of the treatment was directed. It was likewise seen by Dr. J. K. Rodgers, at that time attending surgeon.

entirely to prevent sleep. Opiates were given, but with very partial relief.

June 21st.—The lividity of the great toe, instead of being in detached spots, now involves the whole of its extremity; a slight excoriation on the inner side of the nail has assumed a livid appearance. The whole of the toe is cold, and its extremity is insensible. The pulsations of the femoral artery are exceedingly feeble, and the vessel itself has a cord-like feel when rolled under the finger; pulse 105; tongue as before; some nausea; bowels open; 25 drops of the sol. sulph. morph. were prescribed, and warm fomentations were directed to be applied to the inner part of the thigh.

22nd. The tongue is somewhat more furred, the pulse 100, and feebler than before. The fomentations to the thigh have afforded him some relief, but the course of the artery is still very painful. The patient slept a little during the night, though his rest was frequently disturbed by pains in the great toe, which he compares to arrows darting through the part. The pain is much increased whenever the foot is placed in a depending posture.

P. M. The artery in the thigh beats very feebly, but its pulsations are heard with distinctness by means of the stethoscope, having a loud, whirring sound, between that produced by the blast of a bellows and that made by a saw. The pulse is 100, full and tense; the tongue dry; slight nausea is present. In addition to that in the thigh and foot, the patient complains of great pain in the left hypochondrium. He has had three stools since morning, the evacuations being small, fetid, and of a dark yellow colour. A grain of opium is directed to be taken at bed time, and the opium is to be continued in ½ grain doses every four hours.

23d, A. M. Cowan has slept somewhat during the night, and suffers less from pain than heretofore. The appearance of the toe is the same, the insensibility and coldness gradually increasing. The second toe has now commenced to be painful, the pain occurring in paroxysms. The pulse is 100 and compressible; the tongue clean and smooth in the centre and covered with a rough yellowish fur on either side; skin rather dry. During the night the patient has had five stools, of a character similar to the previous ones.

P. M. Complains of pain in the groin, and several of the inguinal glands beneath Poupart's ligament are tender and swollen. The artery about the centre of the thigh continues to be very painful on pressure. At this part the pulsations are so feeble, that beneath the fingers many of them are lost altogether, and consequently the pulse

seems much less frequent than at the wrist; by means of the stetho-scope, however, the pulsations can be heard much more distinctly than at any other part of the thigh, having a peculiar loud whirring sound, perfectly synchronous with the artery at the wrist. The patient com-plains likewise of pain in the course of the anterior tibial artery, ex-tending upwards from the toe to six or eight inches above the ankle. The pulse is 98, and soft; the tongue cleaner than in the morning. There have been five stools since last visit; appetite good.

24th, P. M. Slight vesications have appeared about the discoloured parts.

25th, A. M. The vesications have burst, and discharged a bloody coloured serum. Pulse 105, and compressible; tongue somewhat furred; the bowels continue loose, there having been three evacuations during the night; the pain in the left hypochondrium remains unabated.

26th, A. M. The cuticle has become detached at various points from the surface of the gangrenous parts, leaving the cutis beneath of a reddish-brown colour, and of a glazed appearance. A small disco-loration has shown itself upon the extremity of the second toe. The enlargements of the inguinal glands have subsided. Eight leeches ap-plied to the course of the femoral artery.

P. M. Pulse 97; tongue almost clean; bowels loose; six stools since morning. On examination, found the pulsations of the artery at the external malleolus perfectly synchronous with those at the wrist; un-able to discover distinct pulsation in the artery at the inner ankle.

27th, A. M. Complains of pains and tenderness of the abdomen; bowels much relaxed; during the night has had seven or eight stools, of a dark yellow colour, thin and fetid. Tongue as before; pulse 90 and soft; skin hot and dry. The toe has been excessively painful during the night.

P. M. Pulse 96; unable, after an attentive examination, to discover any pulsation in the anterior tibial artery, the difficulty of the exami-nation being much increased by small, irregular, spasmodic contrac-tions of the muscular fibres, very closely resembling pulsations; neither could the branch of the anterior tibial running along the upper part of the foot be at all discovered, but a few inches above the ankle it could be made out with great distinctness. One dozen leeches to be applied to course of femoral and anterior tibial arteries.

28th, A. M. Patient expresses himself much relieved by the leech-ing, it having alleviated in a remarkable degree the pains in the thigh, leg, and upper part of the foot. Pulse 105; light stools since last night. Mist. cretacea. At noon the leeching was repeated.

P. M. Expresses himself still farther relieved by the application of the leeches. The toe is still painful; the nail is becoming detached, and a considerable sanious discharge has taken place from under it. Five stools since morning.

29th, A. M. Pulse 110, and full; has had no stool during the night; appetite good; has rested well—better, indeed, according to his own account, than since his first attack. The thigh now gives him no uneasiness, but there is still pain when pressure is made about the middle of the femoral artery. The sawing noise, before heard only over the extent of a few inches, has become louder, and is diffused over a greater space, being distinctly heard from the crural arch to the bend of the knee. The toe is still acutely painful, and a slight erythematous blush surrounds the parts in a state of gangrene. Instead of being cold, the parts next to the slough are now warm to the touch.

From this time Cowan continued steadily to improve. The pains in the thigh and leg wholly left him, though considerable tenderness was still evinced when firm pressure was made in the course of the femoral artery, about mid-way between Poupart's ligament and the knee joint. The toe itself still continued acutely painful, though this did not prevent the patient's sleeping soundly at night. On the thirtieth, a line of demarcation completely separated the gangrenous from the living part. The slough now extended as far as the articulation of the first and second phalanges, and the cuticle was completely detached, leaving the parts beneath black, shining, and inodorous. The diarrhœa, which continued, notwithstanding the large quantities of opium taken, became less troublesome under the use of the mistura cretacea; and as the pains in the toe became less violent, the opium was gradually diminished in quantity. One dozen leeches were once more applied to the seat of tenderness in the thigh, and again with evident relief.

On the 25th of July, Cowan was discharged by request. By this time the furrow between the dead and the living parts had extended as deep as the bone, and the patient himself had removed portions of the slough by means of a razor. The bone was denuded to the extent of several lines, and two or three scales of bony matter had separated. The same sawing noise could be heard by means of the stethoscope in the femoral artery, but it was neither so loud nor heard over so extensive a space as formerly. The pulsations of the artery, though still feeble, has become stronger and more distinct. The general health of the patient was much improved; immediately before his discharge he had walked for several hundred yards about the grounds of

the Institution, an exertion of which he had been incapable for some time previous to his entering the hospital; and though the cardinal disease still remains, and will, in all probability, one day carry him off, he expresses himself better and stronger than he has been at any time within the last six months.

Remarks.—In this case the cord-like feel of the artery, the feebleness of its pulsations, and the peculiar sound heard by means of the stethoscope, in all probability depended on a partial obstruction of the calibre of the vessel, by those deposites of fibrine which have been so generally detected in these cases on post-mortem examinations. The pain which was experienced in its course—a pain which was increased by pressure—seemed to be indicative of some inflammation of the vessel, and the hypothesis was confirmed by the success of the treatment based upon it. Until the application of the leeches the patient had been constantly becoming worse, and from that period his improvement was equally manifest. Indeed he expresses himself to have been relieved immediately after they had been taken off, and was himself anxious that they should be reapplied. The pain, too, it is to be observed, was first experienced in the thigh, nor was the foot affected until several days after.

As was remarked by Dupuytren, the first evidence of the improvement of the patient was the return of warmth to the parts bordering on the slough. While the gangrene was extending, the sensation of cold kept constantly several inches in advance of it, and the parts resumed their natural temperature immediately before the appearance of the line of demarcation. M. Dupuytren remarks, that "the cold is not, as we would imagine, similar to that of the dead body, and which occurs only because the mortified parts acquire the same temperature as the surrounding atmosphere; it is an icy cold, greater than that of the dead body—greater than indicated by a thermometer exposed to the air or immersed in running water. In this case the thermometer was not employed, but to the touch, the parts, though cold, did not by any means seem so to the degree mentioned by M. Dupuytren.

Inflammation of the large arteries supplying the part, is asserted by M. Dupuytren to be invariably the cause of dry gangrene. Recent observers have impugned this opinion on the evidence of post-mortem examinations. Is it always in accordance with the facts observed in the living body? Are the same symptoms always the result of a single cause? or, as in other instances, may they not arise from different pathological conditions? Boyer* relates a case of dry gangrene which

* Traité des maladies chirurgicale.

he attributes to compression. A young man received in his leg the charge of a fowling piece, which fractured the bones, without comminuting them. The wound was dressed by means of a tight bandage, covering the foot as well as the leg; the nutritious fluids no longer reaching the limb, it became diminished in volume, and was seized with dry gangrene. The patient was now brought to the Hôpital de la Charité; he was very weak, the limb was reduced in size, the muscles wasted, black, and resembling smoked beef, and the parts could be cut without exciting the slightest hæmorrhage or the least pain. The line of demarcation formed immediately below the knee joint; hospital gangrene seized the sound part, and the thigh was amputated. Here the parts affected by the pressure alone became gangrenous: was the gangrene the result of an arteritis?

The following case is still more irreconcilable with Dupuytren's opinion of the pathology of the disease; and in it too the treatment which he recommends proved of no avail.

Case II. Miss R. æt. 32, a woman of slender and delicate frame, but who had always enjoyed good health, had suffered occasionally from what she considered as rheumatic pains affecting the right forearm—more particularly the wrist. These pains gradually became more constant and more severe. About the 1st of September, 1835, during the night she was seized with an excruciating pain in the right hand; so violent indeed was it, that, unable to remain in bed, she rose and traversed her apartment in a state of the greatest agony. The hand was pale and cold, and though the seat of such intense pain, seemed, to employ her own expression, as if it were dead. After some time the hand became redder than natural, while her own sufferings were somewhat alleviated. The pain, however, was frequently renewed in paroxysms, and so severe was it at all times, as almost wholly to prevent her from sleeping. For some time the pain was equally severe in all her fingers, shooting up from their extremities; after five or six days, however, several purple spots showed themselves upon the tip of the middle finger, and the pains in this now began chiefly to attract her attention. The spots extended themselves, the pains continued severe, darting, and subject to exacerbations, the finger became cold and its extremity insensible; in fine it was seized with dry gangrene. A practitioner was now called in, by whom Miss R. was bled from the arm. The symptoms were not perceptibly mitigated, nor was the progress of the disease arrested. All this time her general health did not suffer otherwise than from the pain and from the fatigue consequent upon her being deprived of her rest. About four weeks after the first attack, she consulted Dr. J.

Kearney Rodgers. The mortification by this time involved nearly the whole of the last phalanx, the part was cold, insensible, black, shrunk in size, hard, and giving out no offensive odour. The middle finger was still the seat of extreme pain; the extremities of the other fingers were affected with a tingling sensation, sometimes amounting to pain, and occasionally shooting up the forearm, and even into the axilla. Pulsation could not be discovered either in the radial, ulnar, humeral or axillary arteries; no part of their course seemed painful on pressure, nor could the circulation through them be discovered by means of the stethoscope. Disappointed in not finding any signs of an inflammation of either of the great arteries, which, from having seen the preceding case, he had anticipated, Dr. Rodgers pursued the examination. Immediately above the clavicle, a firm bony tumour of great size was discovered; this was decided to be an exostosis, arising from the transverse process of the sixth or seventh cervical vertebra. The tumour approached very near to the clavicle; by its pressure upon the subclavian, it had caused its obliteration, and the tingling sensations felt at the extremities of the fingers and the pains shooting up the arm were in all probability the consequences of a similar pressure exerted upon the nerves. Miss R. was directed to dress the gangrenous parts with the balsam of Peru, to apply stimulating frictions to the extremity, and to endeavour to sustain the warmth of the limb by wrapping it in flannel and cotton bats. Contrary to expectation, in the course of a fortnight, a line of demarcation was formed between the gangrenous and healthy parts, and though still subject to the tingling sensations in her fingers and to the pains shooting along the arm, Miss R. has every prospect of at least a temporary recovery.*

In cases of dry gangrene, should we ever have recourse to amputation before the line of demarcation is formed between the dead and living parts? The majority of surgeons have decided in the negative. Influenced by his notions of the pathology of the disease, Mr. Dupuytren asks, "is amputation of any efficacy against an arteritis?" The question thus stated, he observes, is readily resolved. An operation would leave the cause of the disease untouched, and without in the least arresting its progress, would expose the patient to the suffering the loss of blood, and the irritation attendant upon it. But we have already seen, that, though the symptoms sometimes give it support, the theory of the French surgeon is by no means of universal

---

*The writer lately saw Miss R. and found that the third phalanx had separated at the joint, that the stump had cicatrized, and that the recovery was complete.

application; of course, the conclusions which he draws from it fall to the ground, and experience has shown that amputation may, in some cases, be resorted to with advantage before the progress of the gangrene is arrested. The details of three cases which occurred in the practice of Dr. Mott* of this city, are now before me, and though in neither case had the line of demarcation been formed, in two of them the operation proved completely successful. The first case is that of a farmer, 45 years of age, of middle size, good constitution, and temperate habits. He had had no symptom of disease of the heart or great blood-vessels, and the only complaint to which he had been liable was the bilious colic, of which he had been subject to yearly attacks. On the afternoon of the 12th of July, 1833, after having been over-heated by his morning's work, he was seized with cold chills, soon followed by a burning fever. Shortly afterwards the first joints of all the toes of the right foot were seized with violent pains, accompanied by a sensation of intense heat, and these pains continued to torment him night and day for nine months. A number of physicians were consulted, and a variety of remedies, stimulating, anodyne and antiphlogistic, were had recourse to without the least advantage. Mortification finally commenced in all the diseased toes, and advancing gradually, at length involved the whole of the foot and part of the leg. During its advance it was preceded in the parts which it attacked by the same burning heat and intense pain which had originally been confined to the toes. When Dr. Mott saw the patient, he found the femoral artery of the usual size, devoid of pulsation, and rolling like a tendon under the finger. The man was exceedingly debilitated, the excessive pain deprived him of sleep, and his appetite was entirely gone. Believing that in such a condition he could not long exist, Dr. M. determined to give him the chance of life which an operation afforded. On the 24th of March, 1834, the thigh was amputated about midway between the groin and the knee. The femoral artery required no ligature after the operation, being entirely blocked up by a firm coagulum; the branches of the profunda alone bled; and they but little. For several days after the operation, it seemed as if the patient must have sunk, but under the free use of good wine, the solution of the sulphate of quinine and of the sulphate of morphia, he finally rallied. At first, the lips of the wound appeared pale, and the discharge was thin and fetid. The straps were removed, the balsam of Peru was

*These cases were furnished me by the kindness of Dr. Starr, a pupil of Dr. Mott, who introduced them into his inaugural thesis on "Dry Gangrene."

liberally applied to the wound, and the whole surface of the stump kept constantly wet with it. In a short time the aspect of the wound was changed, and under the same application it healed entirely. On examination of the part removed, the femoral artery and the arteries of the leg were found completely filled with a substance resembling fibrin, which adhered slightly to the inner coats of the vessels.

In both the other cases of dry gangrene, in which Dr. M. had recourse to amputation, the patients were old men, passed the age of 60. In one the leg was taken off half way between the ankle and knee. The gangrene had commenced about six months before; the patient was feeble from age and long confinement, but his constitution was not much affected. The operation succeeded in arresting the disease, and the patient died of dysentery some months afterwards. In the other case, the general health of the patient had suffered considerably from an attack of hydrothorax some months before the gangrene had supervened. It began in one of the smaller toes, and proceeded gradually, unretarded by all the means that were employed, until the whole foot was involved. In this case the general health was much affected, but the patient, as a dernier resort, desiring an operation, Dr. M. amputated the limb: mortification seized on the stump, and the patient died 14 days after the operation and six weeks from the first appearance of the gangrene.

New York, March, 1836.

ART. VIII. *On the indications of Dessault in the treatment of Fractures of the Clavicle, and the manner in which they are fulfilled by the apparatus of that surgeon. Extracted from a demonstrative Lecture delivered before the Philadelphia Medical Society, November 21st, 1835.* By REYNELL COATES, M. D.

There are few methods of treatment in cases of fracture, if we except accidents of this character involving the os femoris, that have led to so much discussion as the celebrated triple bandage of Dessault. Its action has been represented by some as so utterly intolerable to the patient, that it would be better to trust fractures of the clavicle to the simple efforts of nature, rather than incur the evils unavoidably attendant upon wrapping the whole chest and arm in a series of tight dressings of enormous length, rendering the breathing of the patient entirely abdominal, and to a considerable degree imperfect. The

eloquent but sweeping denunciations fulminated against this plan of treatment by the late Mr. John Bell, are too well remembered to require a comment here. The difficulty of avoiding an arrest, or at least an embarrassment, of the circulation in the arm from the necessary pressure of the turns of the bandages, particularly in old and emaciated patients, and the utter impossibility of their systematic application in adult females, have led many to reject the apparatus. Its apparent complexity, and the great skill required in its adjustment, confine its successful employment to those surgeons who have been long practiced in the art of bandaging, for by such alone can it be made to succeed at all. The length of the rollers, and their consequent extensibility also, render their continued effect uncertain, and the necessity of their renewal frequent.

On the other hand, the materials for the apparatus of Dessault are every where obtainable, and the surgeon can prepare them in a few minutes without requiring the aid of an assistant—no mean advantages in many situations.

If we were to attempt to judge of the value of this apparatus by the vaunted test of experience, we should immediately find ourselves lost amid the conflicting testimony of different eminent practitioners, some of whom speak of great success, and others of total failure, in its employment.

In the midst of all this conflict of opinions, precepts and result, the apparatus of Dessault still continues to occupy its place in many of the systematic works, and it is still commended and demonstrated by many surgical teachers. That it has never been totally rejected, proves that the bandage possesses "its capabilities," as the celebrated landscape gardener, Mr. Browne, was wont to say of even the most unpromising tract of country. But, on the other hand, the frequent failures occurring to the best surgeons establish the fact that this plan of treatment is not *always*, even if it be *generally*, successful; and by success we do not mean the cure with perfect coaptation of the fragment, but *cure without deformity sufficient to strike the eye of the observer immediately.*

It has been too much the custom for the warm defenders of Dessault to charge the unfortunate results frequently following his mode of dressing *to the clumsiness of the operator*, but although the neglect of the art of bandaging in many countries, and recently even in France, may render this want of skill a frequent source of evil, yet we believe that a more general and important cause exists in hasty generalization, and mistakes in the proper indications of treatment, with which

the originator and the strong advocates of the plan are every where chargeable.

In regard to the result of the treatment in the most successful hands, we will make but two short comments, which should act as a caution to those who so freely utter the charge of want of skill. The venerable gentleman who stands at the head of American surgery, and whose manipulations with the roller approach very nearly to the limits of perfection, informed us in 1824 that he had never seen a case of fractured clavicle *cured by any apparatus, without obvious deformity.* Now it is well known to all American surgeons, that the apparatus usually employed, and recommended by that gentleman, is the triple bandage of Dessault, with but slight modifications. According to the best information within our reach, the apparatus, as represented in the systematic works, is no longer employed by any of the great practitioners in this country. When used in actual practice it is generally subjected to extensive modifications. In the Pennsylvania Hospital it is now totally discarded, and on account of its frequent failures. How then can we explain the contradictory views of the opposite surgical parties who defend or oppose the method of Dessault? and how shall we excuse ourselves in the occasional use of some of its modifications?

The consideration of these queries leads us into a critical analysis of the indications of treatment pointed out by Dessault, the parts of his apparatus which are unnecessary, or which counteract the very purposes for which they are designed, and the particular cases in which alone his method is defensible upon philosophical principles.

First, then, of the indications.—The special function of the clavicle is to preserve a proper distance between the apex of the shoulder and the sternum, in order to give precision and freedom to the motions of the arm, while it permits, by means of its two articular connexions, the proper movements of the shoulder. When its integrity is destroyed by fracture, it is no longer capable of performing this function. The pectoralis major and minor, and the latissimus dorsi, aided by part of the power of the great trapezius and some other muscles, draw the shoulder towards the side, while the weight of the arm at once destroys the juxtaposition of the fragments of the clavicle by drawing the humeral fragment downward. Such, then, are the first tendencies to displacement of the shoulder.

But the descent of the scapula at its posterior edge is almost immediately checked by the levator scapulæ muscle, which retains the superior angle of the bone at nearly its natural level. The humeral edge of the great trapezius muscle might be supposed to act in the

same manner upon the acromion, though with rather less energy, in consequence of its great length and its curvilinear obliquity; but the moment the shoulder begins to approach the side, the fibres which form this edge are relaxed, and the acromial extremity of the scapula continues to descend with the shoulder, causing a partial revolution of the whole bone round its superior angle. This rotatory movement is of course very much restricted, but it is sufficient to produce some slight approximation to the spine, and some little undue prominence of the inferior angle of the scapula. The rhomboidei muscles aid in this placement.

A considerable portion of the force of the trapezius, with a small part of that exerted by several other muscles, tend to draw the whole scapula nearer to the spine; but this tendency is in a great degree, if not entirely, counteracted by the serratus major anticus, the functional integrity of which is in a very slight degree affected by the accident. This muscle is the natural antagonist of those just mentioned, and it is not more fully relaxed by the descent of the shoulder than are those which it opposes. Hence the muscular stasis of the base of the scapula cannot be considered as influenced perceptibly by either of these sets of muscles. We have examined very carefully the actual position of this part of the bone in cases of fractured clavicle, and have never been able to observe any *decided evidence* of its approach to the spine.

While the shoulder is descending and the scapula rotating, as has been represented, the force of the whole muscular apparatus which draws the arm towards the side of the thorax is resisted behind by the powers which preserve the stasis of the base of the clavicle, which part becomes an axis of motion; and the natural counteraction of the clavicle being lost, in consequence of the fracture and primary displacement, the apparatus in question causes the shoulder to approach the sternum in the only possible direction, by causing it to revolve forward round the axis just mentioned. This gives to the humeral fragment of the scapula a new species of deformity, by directing its sternal end backward toward the first rib.

The combined result of these various species of displacement, is such, that the humeral fragment is made to take its position beneath the sternal fragment, lying in a direction from without, obliquely inward, backward, and upward, crossing the course of the sternal fragment at some distance from its extremity, thus producing a complicated angular deformity with considerable overlapping. When the fracture occurs in any part of the body of the bone, the subclavius muscle is torn, and it is also contused and enfeebled in most cases by the action of the rough sternal extremity of the humeral fragment.

6*

In nearly all cases of fracture of this part, the sternal fragment experiences some displacement from the action of the clavicular head of the sterno-cleido-mastoideus muscle, which elevates the humeral end of the fragment in greater or less degree, according to the greater or less proximity of the fracture to the insertion of that muscle, and the more or less severe injury inflicted on its principal antagonist, the subclavius.

Having thus portrayed the surgical pathology of the accident, we are now prepared to examine the indications of treatment as advanced by Dessault.

According to this author, the displacement of the humeral fragment taking place in a direction downward, inward and forward, it is necessary to effect the reduction, by carrying the shoulder backward, outward, and upward. Now, it is evident, from what has been already stated, and after a little reflection, that but one of these three kinds of displacement takes place primarily, and that the other two are consecutive and immediately dependant on the first. Let us explain. Before the fracture takes place the stasis of the shoulder is dependant upon the tonicity of the muscular fibres which support the clavicle and scapula, none of which are injured in cases of fracture of the body of the former bone. Waiving, then, the effect of the general relaxation resulting from the injury, which, in such cases, is too trivial to be taken into the account, and neglecting also the very slight support yielded to the shoulder by one portion of the sterno-cleido-mastoideus muscle, the shoulder is as well supported after as before the accident, until, by approaching the side, it causes a relaxation of the edge of the trapezius muscle. If then, there be a complete interlocking of the fragments of the clavicle without shortening of the bone, or if the juxtaposition of the fractured extremities be not destroyed, we should infer, theoretically, that the shoulder will not be drawn downward by the weight of the arm. The result of practical observation has convinced me that this theoretical conclusion is correct. In a rare case of fracture of the body of the clavicle without apparent shortening of the bone, and with interlocking of the fragments occurring in an adult patient in the Pennsylvania Hospital some years ago, there was noticed a slight angular deformity, the angle looking upward and backward, but the drooping of the shoulder was scarcely perceptible. This fact explains the nature of several cases which I have seen, wherein old fractures of the middle of the bone have been found united almost without deformity, though the patients had simply carried their arms in slings, either by the advice of practitioners in the country, or at their own suggestion. Again, in fractures of the ster-

nal extremity of the clavicle—where the interlocking of the fragments is more common, and the shortening of the bone is inconsiderable— the depression of the shoulder is comparatively slight. It is sufficiently obvious, then, that were it not for the approach of the shoulder to the side, the displacement downward would not take place to any considerable extent.

It is needless to prove that the rotation of the shoulder forward is the consequence of its approach to the side, and cannot occur when it preserves its proper distance from the mesial line; for the connexion, or rather the identity of these two forms of displacement is too obvious for comment after what has been said of the muscular connexions of the base of the scapula. The slight rotation of the last mentioned bone round the attachment of the levator scapulæ, is still more remotely consecutive, for it is produced by the subsidence of the shoulder, which is itself consecutive to the displacement toward the mesial line.

The knowledge of these several stages of displacement are important in the reduction of the fracture, and the science is deeply indebted to Dessault for pointing them out, though with less regard to their order and causes than was desirable; but fractures of the clavicle may be ranked among those injuries in which the tendency to displacement is constant, and which, therefore, require permanent extension and counter extension; and, in carrying out his views of treatment, Dessault became involved in several important mechanical errors, the necessary consequence of his neglect of that order and those causes. His indications, correct, as has been stated, in *the reduction,* are far from being so in *the retention.* Not content with carrying the shoulder upward, backward, and outward to its proper position, he endeavoured so to arrange the limb and the rollers, as to act permanently in this triplex direction. I will now endeavour, firstly, to show that this complexity of action is unnecessary, and, secondly, to explain the important evil resulting from the attempt to effect it.

If the remarks already offered in explanation of the order of displacement be correct, it follows that so long as the shoulder is kept at a proper distance from the body, no forward displacement can occur, and the disposition of the shoulder to subside is almost insignificant; and it matters not whether this distance is maintained by the clavicle, as before the accident—by the hand of the surgeon, on completing the reduction—or by the pad or other apparatus after the dressing. While it is preserved by any of these means, the muscles, when at rest, secure, very nearly, the proper relative position of the shoulder. So far, then, as extension is concerned, (for the question of the

coaptation of the fragments is a distinct one,) the principal indications are, to carry the shoulder outward to its natural position when in a state of repose, and there to secure it and the arm at rest. To accomplish this it is necessary to give support to the elbow, to remove the slight remaining tendency to depression and to prevent some of the motions of the shoulder. The extension is then made in the natural direction, agreeably to the laws which govern us in the treatment of other accidents of the same nature, and hence it is obviously unnecessary to superadd any apparatus designed to force the shoulder backward.

It would be wrong, however, to pass unnoticed the existence of cases in which the position described is insufficient to secure the coaptation of the fragments. When the humeral extremity of the sternal fragment is elevated by the sterno-cleido-mastoideus muscle, there are two methods by which the fragments may be placed in apposition; 1st. By drawing the sternal fragment downward to the proper level, and 2nd. By elevating the shoulder and humeral fragment above their natural level. The former of these plans is always the better, when it can be employed. Now, when the fracture occurs near the shoulder, the third bandage of Dessault may be made to effect this object with perfect facility, but when the bone is broken between its centre and the sternum, it is not possible to accomplish this object by means of any apparatus now in use, and we have no resource but to follow the other indication, by carrying the shoulder strongly upward, and there maintaining it. To do this with certainty, by means of the apparatus of Dessault, is altogether impossible, as will be shown in the sequel. Still, even in such cases, no advantage can be gained by carrying the shoulder backward after it is once secured at a sufficient distance from the side, and they continue exceptions to the indications of cure as laid down by the author whose views are under discussion.

I will now proceed to mention the great inconvenience resulting from the unnecessary attempt to carry the shoulder backward, by the apparatus of Dessault. For this purpose the surgeon draws forward the elbow of the injured side, inclining the pad in the same direction, in order that the third bandage may act in such a manner, while elevating the elbow, as to force the os humeri strongly upward and backward. This position deprives the forearm of any support from the chest until the humerus is rotated strongly inward and the hand placed on the abdomen; which is accordingly done; and the arm being bound strongly to the side by the second roller, the line of its greatest pressure on the pad corresponds with the rout of the humeral

artery, which is strongly compressed, particularly in emaciated sub-
jects, and the circulation of the arm is seriously embarrassed or ac-
tually arrested. In order to remove this difficulty, it is not sufficient
to loosen the third roller—on account of which the difficulty is in-
curred, though it is really of comparatively little use—but it is abso-
lutely necessary to relax the second roller, upon which almost all the
beneficial result of the apparatus, when properly applied, immediately
depends! It is this embarrassment of the circulation, which consti-
tutes the objection to the apparatus of Dessault, and which has led
many surgeons to condemn it, too frequently without substituting a
better. Now, the fault lies not in the apparatus, but in the indica-
tions which are intended to be fulfilled by it. Let the pad be placed
perpendicularly, and the arm placed over it in the same direction, with
the forearm flexed and directed forward, and the difficulty ceases in
a great degree—the humeral artery courses between the pad and the
front side of the second bandage, and is but little compressed, except
in old patients and those who are very deficient in muscular tone.
In this position, the upper part of the forearm receives considerable
support from the chest and pad, and its lower extremity with the
hand being suspended in a sling, the attitude will be found comfort-
able, nor will the slight freedom of rotation permitted to the limb be
productive of perceptible motion in the fragments of the clavicle.
Nothing is lost by this arrangement but the unnecessary power of
forcing the shoulder backward.

The real indications, then, in effecting extension, coaptation and
retention, by means of the apparatus of Dessault, in those cases to the
treatment of which it is applicable on philosophical principles, are
these: to secure the shoulder at a proper distance from the side by
means of a pad, and at a proper elevation by a roller—to confine the
arm in a state of rest, and to depress the humeral extremity of the
sternal fragment when necessary. We will now proceed to analyse
the action of the several pieces of this apparatus, and to point out
what parts may be rejected with advantage, and what precautions are
necessary in forming and applying them.

1st. *Of the Pad.*—A great variety of materials have been proposed
or employed for the formation of the pad—such as pieces of linen,
quilted wadding, bags of tow or flax, chaff bags, &c. One general
and insuperable objection exists against all the softer materials, much
as they are praised by some; namely, their compressibility. They
have been recommended on the plea that, by distributing the pressure
over a wider surface, they diminish its intensity; but the force re-
quired to counteract the power of the muscles which draw the shoulder

to the side, when it acts with regularity and permanency, is exceed-
ingly small. Even in fractures of the thigh the force required for
extension is comparatively slight, when employed early after the acci-
dent, and when the surgeon does not commit the folly of mistranslat-
ing the old law of avoiding all sudden extensions into an apology for
occupying weeks in performing what can be accomplished with incon-
ceivably less force in as many hours. But the muscles which draw
the arm to the side exert very little tonic contraction when at rest,
simply because the gravity of the member preserves it in its proper
position, when unemployed, without their aid, and their action is
much more easily overcome than would be supposed by those who
neglect, in their calculations, this physiological fact. It is therefore
unnecessary to distribute this slight pressure over a wide surface to
prevent the danger of excoriation, which accident I have never seen
as a result of the apparatus. But there are strong positive objections
to the use of soft materials. They inevitably yield by degrees to the
contraction of the muscles, rendering the extension variable and un-
certain; and, by enveloping a considerable portion of the inner side
of the arm, they constantly add to the embarrassment of the circula-
tion by pressing upon the vessels. The pad should therefore be made
as firm as possible, and few contrivances are better than the original
one, composed of separate pieces of linen ranged in the form of a cu-
neiform compress, and stitched together. The chief objections to this
pad are the time required to make it, its adaptation only to cases of
nearly similar age and size, and the difficulty of cleansing it when
soiled. I have always employed, in private practice, a piece of ordinary
bandage muslin, from four to five inches in width, and from eighteen to
thirty-six yards in length, folded extemporaneously into a graduated
compress in the form of two wedges, united by the bases, with one
side flat, the other forming a double inclined plane, and a little more
than twice the length of the required pad. This compress, doubled
upon itself toward the pyramidal side, and enveloped in three or four
turns of the extremity of the same band, is ready for application, and
may be cleansed when not in use. The most general objection to linen
pads is their weight, which makes it difficult to support them properly
in the axilla. Perhaps one of the best pads might be formed of cork
or light wood, covered with a moveable bag of buckskin, perfectly flat
on one side, and adapted to the form of the chest on the other.

2nd. *Of the mode of supporting the pad, and of the first roller.*—
The turns round the shoulder and axilla of the sound side, which form
part of the first bandage of Dessault, though still figured in many
books, are, I believe, universally discarded in practice. The direction

of those turns is such as to render their action almost nugatory, and besides the impossibility of making them to lay smooth, they act upon parts too compressible to give firm support. Several other plans for suspending the pad are now employed, and of these, the best is the simplest. It consists of a simple scapulary, formed of a piece of roller, the centre lying on the top of the shoulder and side of the neck on the uninjured side, and the ends secured to the pad a little below its middle. By this contrivance the original intention of the first roller is supplied, but its use is continued, to give additional fixedness to the pad. The pressure of the arm alone is generally sufficient to answer this purpose, and any advantage from the bandage is more than compensated by the inconvenience attending its action on the natural motions of the chest. Still it is well to preserve a rudiment of this part of the apparatus, by passing a few turns round the lower end of the pad and the thorax, in order neatly to secure the beginning of the roller, which may then be continued in such a manner as to answer the purpose of the second roller of Dessault.

3d. *Of the second roller.*—This bandage is intended to confine the arm to the side, and make direct extension by using the humerus as a lever; but, by a misapplication of the principle of the distribution of pressure, the turns are carried up to the shoulder, where the superior casts directly and strongly counteract the extension, thus artificially increasing the force required to approximate the elbow to the side. Again: the lower turns of this bandage, according to the plan of the inventor, are made to pass beneath the elbow and over half the forearm, to assist in the support of the elbow, and to bind the forearm to the thorax. The first of these purposes can be fully accomplished, with much less force, and upon more correct mechanical principles, either by the third roller or by other contrivances; while the second purpose is objectionable upon the grounds laid down under the head *of the Pad.* These upper and lower extensions of the second bandage increase its length by several yards, and purchase a little beauty of finish at the expense of much embarrassment of circulation, great extensibility and uncertainty in the dressings, and some difficulty of respiration. They should therefore be rejected, and the second bandage should extend only from the condyles of the humerus to about the middle of the arm; and when thus confined, it is applicable with convenience both on male and female patients, nor is any considerable force required to accomplish the design of this roller.

4. *Of the third roller.*—This portion of the apparatus is beautifully adapted to fulfil two of the secondary indications in the treatment of fractures occurring near the humeral extremity of the clavicle, namely:

the support of the shoulder and the depression of the humeral extremity
of the sternal fragment. But when fracture of the clavicle occurs
nearer the sternal extremity of the bone, this roller is useless. Let
us explain. The third roller has two points of support—one at the
crossing on the top of the shoulder on the injured side, the other at
the crossing beneath the axilla of the sound side, and upon these two
points the elbow is suspended, as in a double sling, one branch of
which is perpendicular and the other oblique. But it must be evident
that the security of the suspension upon the second of these points
depends almost exclusively upon the first, or, in other words, that if
the shoulder and with it the crossing of the bandage resting upon it,
be rendered moveable, the elbow cannot be elevated by the action of
the crossing beneath the axilla. Now, when the fracture occurs in
any part of the outer third of the length of the clavicle the crossing
on the shoulder lies over the sternal fragment, and draws it down-
ward as strongly as it draws the elbow upward. This fragment can-
not be depressed much below its natural level, and, consequently,
the crossing beneath the axilla remains secure and the shoulder is
elevated sufficiently to place the fragments perfectly upon a level. If,
however, the fracture occur at any point on the inner two-thirds of
the length of the clavicle, the crossing on the shoulder rests over the
rough extremity of the sternal fragment, where its pressure cannot be
borne by the soft parts, or it reposes on the humeral fragment alone,
where it cannot produce any effect in elevating the shoulder, because
it is left at liberty to follow all the motions of the part. The third band-
age, therefore, cannot preserve the shoulder at the natural level in these
cases; much less can it elevate the part. But these are precisely
the cases in which the shoulder requires to be raised above its ordinary
station, because the humeral fragment must be elevated to meet the
sternal fragment, which latter cannot be depressed by any apparatus
now in use. The apparatus of Dessault is, therefore, inapplicable in
fractures of the clavicle occurring at a greater distance from the
acromion than one-third the length of the bone.

5th. *Of the Compresses and Sling, &c.*—These accessary parts of
the apparatus of Dessault require but a passing notice. The com-
presses are rarely advantageous, and are generally omitted. A sin-
gle compress beneath the crossing on the shoulder made by the third
roller is sometimes useful in assisting to depress the sternal fragment.
If the position of the elbow and forearm which I have recommended
be defensible upon correct principles, the sling must of course hang
free, instead of being enveloped in the terminal circular turns of the
third roller, as is generally directed. The scapulary which is attach-

ed to all the bandages and which passes over the shoulder of the sound side, should not be neglected, for it increases the security of all the dressings.

Having now completed this analysis, I will conclude with a few general remarks.

The apparatus of Dessault, simplified by the modifications suggested, becomes easy of application, and not very uncomfortable to the patient. It is applicable in females with less trouble than is generally supposed. It is decidedly the least expensive and the most readily obtainable of all the contrivances in use, and it enjoys some mechanical advantages over them in fractures of the outer third of the clavicle. It is also extremely valuable in many other injuries about the shoulder. All that need be provided for its application, are a proper pad and one or more rollers of suitable length. The dressing may be accomplished in the following manner.

The patient being seated on a stool, or the corner of a bed, or standing, an assistant behind him places one hand near the upper part of the inside of the arm, while with the other hand he grasps the middle of the forearm of the patient, allowing the elbow to rest upon his own forearm. The assistant then carries the elbow of the patient nearly a right angle with the body, making gentle extension at the same time. The surgeon then pins securely one extremity of a strip of bandage to the front edge of the outer surface of the pad, and placing the thick end of the latter as high as possible in the axilla, he casts the loose end of the strip of bandage over the shoulder of the sound side, draws it strongly downward obliquely across the back, and secures it to the posterior edge of the outer face of the pad, opposite the other attachment. Then, taking the roller and pinning its commencement to the middle of the lower part of the pad, he casts four turns and a half, or more, if necessary, round the thorax and lower part of the pad. He next pins his last turn securely on the middle of the uninjured side, and directs the assistant to bring the arm of the injured side slowly and directly downward to an acute angle with the body. Then, giving the roller in charge to the assistant, he brings the arm vertically to the side over the middle of the pad, supporting the elbow at the same time, and thus completing the reduction.

Retaking the roller, he carries it again round the thorax and the arm, a little below its middle, descending by three or four turns of increasing obliquity to the elbow. If the roller be sufficiently narrow to form a proper substitute for the third bandage of Dessault, he continues it. If not he employs a narrower one. In the former case,

after firmly securing the last turn on the middle of the sound side, he carries the roller thence under the elbow of the injured arm, and from that point follows the ordinary rout of the third bandage of Dessault. Though, in this view of the mode of application, but a single roller is employed, the several parts may be detached or separately applied when long rollers are not conveniently obtained.

Thus employed, the apparatus of Dessault well deserves to retain its station in the materia chirurgica, but it is surprising that neither its inventor nor his successors have pointed out the principal cause of the hostility engendered against it, namely, its employment in those cases to which it is totally unfitted.

ART. IX. *Case of Incomplete Catalepsy.* By AUGUSTUS C. BALDWIN, M. D., of Georgia.

On the 6th of May, 1835, I was called to visit the subject of this case, a boy of about eight years of age, who was stated to be asleep, and whom it was impossible to awake. About twelve months before, I had been called to the same patient in a similar situation, and was informed by his mother that she had sprinkled cold water on his face, and that she had shaken and slapped him, but that no efforts of her's could arouse him from his slumber. He had at the time of my visit a natural appearance; his sleep appeared easy and pleasant; and in fact, from appearances in general and the condition of his pulse, which I carefully examined, had it not been for the circumstance of my having been called on to prescribe, and the statement of his mother, I never should have suspected that anything unusual was the matter. Having attempted in vain to awaken him, and believing that an undue determination of blood to the head was the cause of his malady, I took from his arm a few ounces of blood. As soon as the blood commenced flowing, he struggled, and soon after awoke in tears; his crying, no doubt, arose from his fright at being bled, as he possibly was conscious of what was going on during the whole time, although he was unable to speak or do any thing to prevent it. After this, he appeared as well as usual, nor did I hear any thing more from him until called on again to prescribe for him in May, 1835, when I found him in a similar situation to that in which he had been in the spring of 1834. His pulse being so natural, and his sleep apparently so easy, and thinking his having awoke so suddenly after the letting of blood on the other occasion might have been the result of accident, possibly, from its being near the time for a natural termination of the sleepy

fit, I directed that he should not be disturbed, and gave it as my opinion that he would pass through his drowsy state, without danger, in a few hours. How long this unnatural sleep had lasted no one knew: the boy had gone to bed in good health on the night preceding, but had neglected to get up at his usual hour this morning. A little after seven, A. M., he awoke as if from a refreshing sleep, appeared as well as usual, and went about his ordinary business. On the 9th, 12th, 16th, 19th and 21st days of the same month, he was attacked in the same manner with his sleeping malady, which was allowed to take its own course, and which terminated each day about seven o'clock, A.M., and he went to his accustomed employment as if nothing had happened. On the 22nd, another attack coming on, I determined to observe the case more closely, and to endeavour to do something for the relief of my patient, there being no prospect of the disease leaving him spontaneously. At this time he appeared, as before, to be in the enjoyment of a pleasant slumber; his eyes were closed, and he seemed to be unconscious of every thing which was going on about him; his pulse was 92 in the minute, and a slight flush could be discovered on his cheeks. On raising his hand and letting it go, it remained in the position in which it had been placed for several moments, and then would fall suddenly; the countenance of the patient remaining unchanged during the whole time of the experiment. On separating the eyelids, the eyes were discovered to be in perpetual motion, rolling from side to side, as I have frequently seen in children in our febrile affections, before being attacked with convulsions; but at no time did they appear to fix themselves on any object, nor could any dilatation of the pupils be discovered. Although apparently unconscious of every thing when undisturbed, the patient, nevertheless, must have been partially conscious of what was taking place about him, for he would smile or shed tears when any thing was said or done to please, frighten, or hurt him. Towards the termination of the fit, he moved himself slightly, groaned occasionally, and grated his teeth together several times. After it was over, he said he had a slight pain in the head, but of this he did not complain long, and in a few hours was as cheerful and as well as usual. About an hour before my patient awoke I took a few ounces of blood from his arm, and cupped him on the back of the neck; but, so far as I could discover, the bleeding and cupping were productive of no benefit. He was then held in a sitting posture, and his feet placed in a tub of warm water. In a short time he appeared to the bystanders to be going into convulsions, was hastily laid down, and in a few minutes awoke. In a quarter of an hour after the fit went off, I called him to me, and inquired how he felt. His reply was, that he was well, and, although he had com-

plained, immediately after coming to himself, of a pain in the head, at this time he denied having any uneasiness whatever, and, to my surprise, gave, on being questioned, a minute account of what had been done for him during his sleeping moments, as well as a correct narrative of all that had been said by persons around during the same period.   In the course of the day, he was directed to take a gentle cathartic, which was repeated on the 23d and 24th, during which days he continued free from an attack, as he did on the day of the 25th.   On the morning of the 26th, some time after sun rise, he was found in one of his sleepy fits, occasionally groaning and crying.   In a little time he appeared as if about to awake, and at length, getting up on his hands and feet, he crawled out of the door, yet he was not awake, for his eyes continued closed, and his head would fall first to one side and then to the other, as it was affected by its own gravitation.   By degrees he came to himself and went about his usual business.   Occasional cathartics were administered up to the 31st inst., on which day he experienced his next attack, and, when found asleep, was pulled and hauled about and had cold water poured upon his head to no purpose, for the paroxysm continued for its usual time and disappeared, as it had always done before, leaving the patient as if nothing had been the matter.   From the 1st to the 12th of June my patient escaped entirely, during which time he took an occasional cathartic, and was believed by all to be in a fair way of recovery; but on the last named day he suffered another attack, which lasted, in spite of all that could be suggested, one hour longer than any of those by which it had been preceded.   The two succeeding paroxysms came on the 16th and 25th days of the same month, but presented nothing peculiar.   At 9 o'clock, P. M. on the 29th of May, another paroxysm came on, and this was the first time in which the disease had made its appearance in the evening.   On this occasion I raised the arm of my patient, and, on letting it go, it remained in the position in which I had placed it; but on desiring him to put it down, he let it fall suddenly.   This experiment was repeated several times, and always with the same result.   On being asked to show his tongue, he took no notice of the request; but, on my opening his mouth, and telling him that his tongue was not far enough out, he endeavoured to push it farther, and partially succeeded.   Several observations were made about him, for the purpose of exciting his laughter, at many of which he smiled, but neither in this instance nor at any other did he ever laugh aloud.   From his apparent consciousness of every thing which was going on around him, and from his obeying the several commands which I had given him, I concluded, that it was all an imposition which he was practicing upon me and others, and accordingly recom-

mended the use of the switch, which, from my impression at that time, I had no doubt, would, in a few minutes, bring him to himself, and supersede the necessity of any thing else for the future. It was quickly resorted to, but with no better success than the rest of my prescriptions. During its application he cried aloud, but did not open his eyes, nor show the least symptom of returning wakefulness. I was truly sorry that I had been the cause of his suffering so unnecessarily, for, to my mind, it was then evident, that his situation was the affect of disease, and was not assumed for the purpose of deception. Being satisfied in this particular, and still attributing the situation of my patient to a fulness of the blood-vessels of the brain, I opened a vein in his arm, and took half a pint of blood, from which not the least benefit was discoverable; and as I could suggest nothing else which promised to be more successful, I left my patient to sleep off his fit as usual, which he did by seven o'clock, A. M. on the morning following. On the 3d of July, he suffered another attack, which differed from those which had preceded it in this particular only, that he slept with his eyes open.

Depletion, after so long a trial, having been productive of no apparent benefit, I determined to discontinue it, and conjecturing that the disease, possibly, might be of gastric origin, directed as an antacid and tonic, three grs. of the sub. carbonate of ammonia and half a drachm of the tincture of columbo, mixed in a wine-glass of water three or four times a day. Under this treatment the patient had no fit until the 10th inst., having had an intermission of seven days, during which time he had taken his medicine regularly, and had been confined to light suppers. The attack on the 10th was succeeded by others on the 15th, 18th, 20th and 29th of July, after which there was no other until the 10th of September following, and this no doubt was brought on by a hearty supper taken the night before. From that time up to the present, March 6th, 1836, the patient has enjoyed a perfect exemption from all kinds of disease, and is now as fine a looking boy as any in the country.

St. Clair, Burke County, Geo., March, 1836.

ART. X. *Observations in the Neuralgiæ.* By CHAS. C. HILDRETH, M.D. of Zanesville, Ohio.

Perhaps in no class of diseases, have greater practical improvements been made within the last few years, than in the treatment of

the neuralgiæ.   The profession are much indebted to **Mr. Teale**, of London, for many valuable discoveries in the diagnosis and treatment of nervous diseases.   He has beautifully illustrated and confirmed the fact, that disease of the spinal column, or ganglia of the sympathetic, is not so much evinced by symptoms developed at the immediate seat of the affection, as by pain and irritation at the extremity of the nerves, arising from the diseased mass.   Hence, all those nervous affections of the head, heart, stomach, &c. so frequently met with in hysteric females, should not be regarded as diseases of the particular nervous filaments distributed to those organs, but as diseases of the ganglia or nervous masses from which the filaments are derived.   This is a pathological fact of immense importance in a practical point of view.   It teaches us the actual seat of disease, and the cause and origin of the symptoms attending it.   Experience also proves the fact, that pressure over the diseased medulla spinalis produces pain in the filament arising from it; that such pressure cannot be borne to any extent, should there be much irritation or congestion of the neurillema beneath.

By observation, we learn, that the most prompt relief of the neuralgia of the filament is to be found in the removal of this spinal tenderness or irritation, by depletion and counter-irritation.

The attending symptoms evince disease of both anterior and posterior branches of the spinal nerves.   Thus, we have rigidity, loss of power, tremors or spasmodic convulsions from irritation of the nerves of motion or volition; partial paralysis and impaired or most exquisite sensibility, and pain in the nerves of sensation.   Permit me to give a few cases in illustration of the above observations.

Case I. Mrs. G., æt. 30, has for many years been severely afflicted with pain in her face, head, arms, breast, &c.   The pain in her face she supposed to have originated from the extraction of a tooth, and the removal of part of the superior maxillary bone.   The pain in her head is of a purely neuralgic character, intermitting, and of the acutest intensity; occasionally darting from the upper part of the cervical spine, entirely around the scalp.   Her eyes become tumid and painful during a paroxysm; her face also swells, the muscles of the neck become rigid and painful; her arms partially paralytic, the needle drops from her fingers, and prickling sensations are felt even to the extremity of the limb.   Pain is, also, sometimes felt in her side, breasts, and stomach; but these symptoms give her but little inconvenience, compared with the facial and cranial affection.

By way of consolation, her physicians uniformly told her that there

was nothing the matter with her *but the hysterics.* The cervical spine was found very tender on pressure throughout its whole extent. Here we at once perceive the fons et origo of all the above symptoms. Pressure upon the first and second cervical vertebræ, caused the pain to shoot around the head, in the direction of the sub-occipital and posterior branches of the second pair of nerves. Pressure upon the next two vertebræ, produced pain in the face and neck. The application of the fingers to the lower cervical vertebræ gave pain in the arms and breast. The manual examination aggravated the pain for some hours.

Directed a blister over the whole of the cervical vertebræ; and sulph. quinæ grs. vj. to be taken in the early part of the day, to prevent the violence of the paroxysm usually occurring in the after part, the quinine to be continued daily. The blister *while drawing* very much aggravated all her sufferings, but afterwards alleviated the same in a far greater degree than any previous application for the last two years. After the drying up of the blister, the pain began to return. The patient being very anxious for relief, and the spine not yet bearing pressure, I determined to abstract some blood by cups. At the commencement of the operation, the patient was comparatively free from pain. The exhaustion of the first cup (over the first and second vertebræ) caused the pain to move slowly around the head beneath the scalp, commencing at the spine, whence it proceeded around a little above the ear to the forehead, and from thence over the parietal bone to the spine on the other side. It proceeded so gradually, that the patient, with her finger, pointed out to me its course and progress. The pain was at first most intolerable, but, after the free abstraction of blood, it gradually subsided. The next cup covered the third and fourth vertebræ, and produced pain in her *cheek* and neck; the next, applied still lower, produced pain in her arms, and slightly in her breast.

In a few hours after the cupping, the pain ceased entirely, and did not again return for several weeks. About a month after the first cupping, her arms became somewhat paralytic, and the facial neuralgia was aggravated. For the relief of those symptoms, she was again cupped over the cervical vertebræ, and the following ointment liberally applied to the part. R. Tart. antim. ʒii. pulv. Lyttæ vesic. grs. xv. ceratum simplex ℥i. ft. unguent. S. Apply to back of neck twice daily.

A very irritating and painful eruption soon followed the use of the ointment. It was allowed to desquamate and was produced again and again, until all tenderness on pressure was removed. She is now entirely free from all neuralgic symptoms. The facial neuralgia very

much resembled the tic dolouroux of the books, but was not located in the branches of the fifth pair, nor in the portia dura of the seventh, but probably in the superficial cervical nerves spread out on the cheek. In speaking of facial neuralgia, it may not be amiss to mention, that I have in several instances seen the north pole of a strong artificial magnet, give prompt relief during a paroxysm. Concerning the modus operandi of the magnet, I can say nothing, nor shall I attempt to explain the intimate relation or connexion between the magnetic, galvanic, and nervous fluids. Of the fact, however, as above stated, I am perfectly satisfied from observation. A strong solution of the cyanuret of potash, and a combination of the extr. belladonna with morphia, spread upon adhesive plaster, and worn over the nerve affected, are local applications which promise much relief.

CASE II. Mrs. K. H., æt. 38, having recently returned from a malarial district, consulted me concerning an intermittent not long since contracted. I found her in the third paroxysm, with high fever, violent pain in the head and side, with acute sensibility to pressure over the left hypochondrium; her pulse full and strong; skin hot and dry; V. S. to approaching syncope was practised with much *apparent* advantage. Profuse diaphoresis followed the use of the lancet, with prompt alleviation of pain. Her bowels not having been moved for the last three days, a powder containing twenty grs. of calomel and ten grs. of Dover's powder was exhibited, to be followed in three hours by active cathartic pills. Instituting a more minute examination of her case, I ascertained that the paroxysm was quotidian, and that she had but recently recovered from a tertian of seven weeks duration. Her menses had been suppressed for the last two years. In the interim she had been afflicted with the usual routine of hysterical symptoms, as palpitations, globus hystericus, syncope, &c.; general health very much impaired. Notwithstanding the free action of the cathartic medicine, the succeeding paroxysm was far more severe than the last, and was attended with hysterical mania or delirium, of so violent a character, that her attendants supposed her dying. For the purpose of temporarily relieving her, I administered the usual antispasmodics, with the effect of restoring her to consciousness. She now complained bitterly of "rheumatism of her knee." On examination, her left knee was found *somewhat red, much swollen, very painful, and to the touch acutely sensitive,* thus exhibiting all the most prominent characteristics of acute rheumatism. This painful affection of the joint, she informed me, was always very much aggravated during the intermittent paroxysm, and at all other times gave her but little inconvenience.

She also complained of violent pain in the left side, not increased by full inspiration, and unaccompanied by cough; but much aggravated by the slightest pressure. Of course, I could not refer the symptoms to pleuritic disease. To confirm my diagnosis of spinal irritation, I had but to make the requisite examination. Applying my fingers to the first and second cervical processes, the patient complained of increased pain in the head. This being of a superficial character, and confined to the scalp externally, I referred it to a neuralgic affection of the sub-occipital and posterior branch of the first pair of cervical nerves. Pressure upon the lower cervical vertebra produced palpitations, and slight angina pectoris; upon the upper dorsal, gastric distress, flatulence, and globus, compressing the lower dorsal, I could readily refer the increase of pain and sensibility of the side to neuralgic irritation of the intercostal nerves, and the superficial cutaneous branches. Coming to the lumbar spine, I must confess my surprise to find my "rheumatism" so much aggravated by a little pressure on the processes. Began to question the propriety of substituting the term neuralgia of the knee for rheumatism. However, as the disease had all the ostensible properties of rheumatism, and recollecting the prompt relief afforded by the application of *cups to the spine* in acute cases, I concluded to call it rheumatism. This, however, is a matter of but little importance, as in practice we prescribe for symptoms, and not *names of disease.* For, I suppose, it is in this case, as Shakspeare says about the rose; that which we call a rheumatism, *by any other name will be as painful.* Having perfectly satisfied my own mind concerning the nature of the case, I at once proceeded to the treatment, and the upper dorsal being the most sensible part of the spine, I applied a blister to the same, extending over six or eight of the vertebræ. A turpentine embrocation was directed to the remaining portions. During the febrile intermission, sulph. quinæ grs. x. was exhibited with the expectation of preventing the recurrence of the paroxysm. In this, however, I was disappointed.

Sept. 2. The irritation of the blister, together with the previous depletion by the lancet (which was, no doubt, decidedly injurious) gave rise to another paroxysm, attended with long continued syncope, and followed by a slight chill and mild fever; but far less violent than the preceding. Stomach very irritable, rejecting frequently its contents. The pain of the side and knee were again aggravated during the paroxysm. Applied sinapism to epigastrium, and gave small doses of calomel and Dover's powders every two hours.

Sept. 3. Found the blister discharging freely; stomach much less

irritable; the pain and sensibility of the side much diminished.   Applied blister over the lumbar spine, and directed sulph. quinæ grs. x. to be taken before the expected paroxysm. This had the desired effect of preventing its recurrence.

Sept. 4*th.* No pain has been felt in the side or knee; but the patient suffered violent headache during the night, and profuse diaphorosis towards morning—feels much debilitated, and without appetite. Directed sulph. quinæ grs. vj. to be taken daily, and a blister to the cervical spine for the relief of the headache, which was evidently neuralgic, as above explained;—generous diet and occasional stimulants were also prescribed. From this time the patient improved rapidly. The blisters were kept discharging for several days, and were re-applied until the spinal tenderness was perfectly relieved. With the subsidence of the spinal irritation disappeared also all those neuralgic, hysteric, and rheumatic affections, with which she had been so long afflicted.

Dec. 10*th,* 1834. Patient informs me that she still remains free from the symptoms above detailed, and enjoys much better health than she has had for some years previous.

Remarks.—We deem the above case interesting, chiefly on account of its complicated character. We have here presented all the symptoms of spinal neuralgia, hysteria, rheumatism, and intermittent fever, collectively. I need not say that all the above symptoms originated in disease of the spinal column, except, perhaps, the intermittent, which, primarily at least, had a malarial origin. I apprehend, however, that much difficulty would have been found in *permanently* curing the intermittent, without first removing the spinal irritation. She informs me, that her previous attack of ague of seven weeks duration was not checked except by inducing a profuse salivation; nor had she entirely recovered from the effects of the mercury when she first consulted me—thus indicating a strong tendency to a relapse. The first attack had resisted a great variety of remedies—and being finally suspended by the calomel, in a few days returned. The second was promptly checked by a few doses of quinine, together with the *applications to the spine,* and has not since returned.

The rheumatic or neuralgic affection of the knee was, perhaps, the most interesting feature of the case. During her previous attack of ague, she informs me she had suffered rheumatism of the joints of the elbow and wrist; and that the pain, &c., was (as in the present case) confined almost exclusively to the paroxysm. The knee joint has alone suffered since she came under my charge. As before observed, during the febrile paroxysm, she complained much of pain and ten-

derness of the joint. This was also much increased by pressure over the lumbar vertebræ, at the origin of the nerves affected. We think the profession much indebted to Dr. J. K. Mitchell and others, for their pathological and practical observations on the *special* origin and treatment of rheumatism. To the prompt relief afforded by cups to the spine, in the acute stage of the disease, I can testify from personal observation. And although blisters to the spine do not produce such obvious relief as the abstraction of blood by cups, yet in the present instance they afforded almost immediate benefit. The *tenderness* of the spine, which is rather an unusual symptom in rheumatism, was in this case well marked. The intercostal, neuralgic, and the accompanying hysteric symptoms, have been already sufficiently explained.

Case III. *Convulsive Hysteria.*—Jan. 17th, 1833, I was requested to visit Miss S. F., residing eight miles from Zanesville. Found her in convulsions, with rigid spasmodic action of the extensors of the whole system;—highly nervous and excitable—the least noise or motion bringing on the convulsive paroxysm—no fever, or much acute pain at present. Her mother informs that she had suffered violent headache and pain in the side on the day previous, which had been partially relieved by sinapisms. The spasms came on two days previously, and immediately after the catamenia. From the existing symptoms, I inferred derangement of the menstrual function—probably suppression during the period of secretion—but, on inquiry, learned that she had menstruated the usual number of days, *though much too profusely*—and that menorrhagia had existed for the last nine months.

Dr. Tate, I believe, first pointed out to the profession that convulsive hysteria never exists without *disordered menstruation and spinal irritation*, (usually in the upper dorsal and lumbar vertebræ,)—and that hysteria in all its protean shapes, is only *permanently* cured by removing this spinal disease—a suggestion I have almost daily acted upon among delicate nervous females; and of the truth of which I am perfectly convinced from observation. But to return. The patient for two days previous had been rather cold and chilly, but reaction had now come on with full and frequent pulse, and during the paroxysms some flushing of face—V. S. to ℥ xvj. was followed by acet. morphiæ gr. i. with the hope of checking the convulsions. As they, however, proved rather intractable, the warm bath was used with good effect. The perspiration had a peculiarly offensive odour—after the bath pulv. ipecac. comp. grs. xv. was exhibited. In the course of an hour and a half, the spasmodic action was allayed, and the patient went to sleep. The spinal column proved very tender on pressure,

through nearly its whole extent. As soon as the system became nar-
cotized, a blister was applied to nearly the whole extent of the affect-
ed portions, in order to effect a permanent cure of the disease. The
process of vesication had no unpleasant effect at the time; nor did the
spasms recur after its application. It was directed to be kept dis-
charging for almost a week, and to be re-applied should any tender-
ness of the processes continue. For two years past the patient has
has had no return of the hysteria nor menorrhagia.

CASE IV. Miss T., æt. 17, residing four miles from Zanesville, has
for two years past been troubled with hysterical symptoms. Within
the past month they have become much aggravated. She has deranged
menstruation, constipated bowels, and occasionally paroxysms of a
convulsive disease resembling catalepsy—(no doubt some anomalous
form of hysteria.) This convulsive affection, from its frequent re-
currence, has somewhat impaired her mental vigour. Examining the
case more minutely, I found much derangement of the stomach and
bowels, a furred tongue, and verminous symptoms;—occasionally she
had fever, violent pain in the head, and delirium. Her mother, (a
very intelligent woman,) said that she despaired of her ever regain-
ing her health, as the above symptoms had existed for some years
past, and were daily becoming more aggravated—said she thought
her daughter's intellect was fast declining, and expressed fears of her
becoming entirely idiotic. The patient informed me that the pain
in the head was always preceded by pain in the cervical and upper
dorsal spine; from which it seemed to radiate to the head, and at
once deprive her of consciousness;—the convulsive paroxysm fol-
lowed. I supposed, on reflection, that the above symptoms origi-
nated in part from intestinal irritation, and partly from spinal dis-
ease. Her bowels were constipated, and the secretions from the
mucous membrane of a vitiated character, as usually occurs in chlo-
rosis. Pressure upon the upper dorsal spine caused her great pain;
and upon the upper cervical, produced the pain in the head, and al-
most deprived her of consciousness. By the repeated administration
of large doses of calomel, followed by full doses of castor oil and
spirits turpentine, large quantities of lumbrici were evacuated, and
the secretions of the liver and mucous membrane gradually became
more healthy—her evacuations being at first very dark and effusive.
The paroxysms still continued, but were less frequent, and dimin-
ished in violence.

To correct the spinal irritation, we at first applied a blister.
This, however, had but little effect. Ung. tart. antim. was then ap-
plied:—during the coming out of the eruption the convulsive parox-

ysms were aggravated in all respects; but as it gradually went away, they were manifestly benefitted. As considerable tenderness still existed over the cervical spine, cups were applied, and blood abstracted with good effect. In a few days afterwards, a very active and irritating application was made to the affected portion of the spine, of pix. Burgund., tart. antim., pulv. littæ vesic. This was applied in the form of plaster, and produced a painful revulsive action, and almost perfectly relieved the spinal tenderness. The irritation in this case was found unusually obstinate. Some counter irritation was made to the affected portion almost constantly, for a space of about *four months.* It was not until after the repeated application of cups, blisters, tart. antim., &c., that the spinal irritation was removed, and the paroxysms ceased. During the cure active exercise in the open air was enjoined;—carb. ferri., sulp. quina., and other tonics were also exhibited.

Jan. 12th, 1836. The father of the young lady this day informs me that her health is now perfectly restored, but thinks her mental vigour still slightly impaired, particularly her "memory of events."

CASE V. Mrs. S., æt. 65, came to Louisville, to consult me about a neuralgic affection of the eye and circum-orbital region, with which she had been suffering most acutely for four months past. Saw her first in December 24th, 1835; she had been under the charge of other physicians since September last. She has been perfectly blind for four or five years in the affected eye, (the left,) from amaurosis. The eye presented the following symptoms: chronic inflammation of the conjunctiva and meibomian glands; cornea slightly vascular and nebulous; sclorotic coat also inflamed, (indicated in part by the violent circum-orbital pain;) iris discoloured and immoveable; great intolerance of light in the sound eye and epiphora; the inflammation and pain is of a purely intermittent or neuralgic character, being more violent every other night. The pain usually commenced at sunset, and continues until morning, of the most intense character. During the day it is less violent; but *even then* she has not for four months been entirely free from it.

"Tired nature's sweet restorer, balmy sleep," has been to her eyelids a perfect stranger.

The pain, she informs me, usually commences in a twig of the second branch of the 5th pair, coming out at the supra orbitar foramen, but sometimes in a branch of the first filament of the fifth pair, coming out at the superciliary ridge. It comes on very suddenly, and is most intolerable. During the paroxysm there is great intolerance of light and profuse discharge of tears. The feeling of sand

in the eye, (indicating conjunctival inflammation,) is also aggravated. I omitted to mention above an almost perfect paralysis of the upper eyelid, existing for some two or three months past.

Authors on diseases of the eye, would style this case catarrho-rheumatic-ophthalmia. Catarrho, from the similarity of the conjunctival influx to that of other mucous membranes, and rheumatic, from the close resemblance of the pain to that attending inflammation of the fibrous structures in other parts of the body. In the present case, the pain was certainly more truly neuralgic than rheumatic. The eyelids are very tender to the touch during and after the paroxysm of pain. ˙She had some febrile symptoms, some throbbing of temples, and pain of head. Being of full robust habit, I drew about ℥xvj. of blood from the arm, and administered an active drastic cathartic. As a collyrium, I prescribed the following. ℞. Ox. muriat. hydrarg. grs. ii pulv. g. opii Ͽi. aqua distillate ℥viij. ℳ. S. To be applied warm to the eye four times daily. To relieve the pain about the eye, I directed, ℞. Extr. belladonnæ ʒi. acet. morphiæ grs. x. tinct. opii q. s. ft. unguent. S. To be smeared over the eyelids and circum-orbital region three times daily, and particularly at night, should the pain return. Small pieces of adhesive plaster were spread with it, (i. e. except the margin,) and worn constantly over the foramina in the face, and orbit, which give exit to the nerves affected.

Dec. 25th. Much pleased to find my patient had passed the night comparatively free from pain and had enjoyed some hours of refreshing sleep. The eye exhibited less intolerance of light and epiphora. The *feeling of sand* being still troublesome, and the vessels of the adnata distended with blood, I prescribed the following. ℞. Nitrat. argent. grs. x. aqua rosa. ℥i. ft. solution. S. To be dropped into the eye, morning and evening.

At 4, P. M., cups were applied to the left temple; bled very freely; abstracted about ℥x. After the operation, I could perceive a diminution of the redness and distension of the vessels of the conjunctiva. Directed, ℞. Cal. ppt. grs. v., pulv. g. opii grs. iss., pulv. g. camph. grs. iii., conserv. rosar. q. s. ft. massa., en pillul. No. ii. divid. S. To be taken at 5, P. M.

Dec. 26th. Found the patient much better. In the natural course of the disease the paroxysm of last night would have been more violent than that of the night previous, but by the remedies it was entirely prevented. Continue treatment. Directed ung. hydrarg. nit. ox. to edges of lids at night, to correct disease of follicles and repress their secretion.

27th. Patient still improves. No pain during the night. Perceiving

some increase of the inflammation of the eye in the afternoon, I again applied cups to temple. Continue treatment. The cal. et opii, as usual, at night.

28th. Patient informs me that the circum-orbital pain came on about midnight, but much less violent than usual, and also that *seven* nights previous she had suffered an exceedingly violent attack, thus showing another striking point of analogy between the present disease and the common intermittents of the country, the paroxysms of which are so liable to return every 7th, 14th, or 21st day. Continue treatment.

Directed carb. ferri ʒi. three times daily—the cal. et opii, as usual, at night, giving a larger dose of opium every other night, to correspond with the violence of the expected paroxysm.

29th. Found the patient suffering slight ptyalism—no pain during night; no intolerance of light, nor epiphora; cornea more transparent; pupil irregularly dilated from the belladonna; ophthal. conjunct. much reduced; paralysis of eyelid much alleviated; the patient now having nearly perfect command over the voluntary motion, (probably the effects of the calomel.) Continue treatment, except an omission of the pills of cal. and opii.

30th. Still improving in all respects. Patient feels quite confident of ultimate escape from her most unwelcome nocturnal companion.

Jan. 3d, 1836. Returned to country, entirely relieved of the circum-orbital pain, and accompanying ophthalmia. Vision still gone from the left eye, and no reasonable prospect existing of relieving an amaurosis of four years' duration.

Zanesville, Jan. 7, 1836.

Art. XI. *Application of the Bandage in Gonorrhœa.* By S. W. Dalton, M. D., of New Orleans, La.

My attention was first called to the consideration and subsequent adoption of the method here proposed of treating gonorrhœa, when a student of medicine at Transylvania University in 1825, by the lectures of Professor Dudley, upon the use of the bandage in the treatment of local inflammation generally, wherever its application can be properly and equably made. But the peculiar appropriateness of the remedy more particularly struck me, from the remarks of that able professor, upon its use in paronychia and paraphymosis, where pressure gradually increased, even by the hand, for a few minutes, is

known to produce the happiest effects. From the analogous condi-
tion, in part, of these affections, to that above, induced me to pro-
pose its application in an obstinate case, which came under my notice
at that time, and which had resisted the skill of the faculty for eigh-
teen months. The bandage was accordingly applied with much care
and equability, from the glands penis back to its dorsum, the penis
itself being in a state of relaxation. It was then ordered to be im-
mersed, from time to time, in a cold, saturated solution of the acetate
of lead, so as to keep the bandage continually wet, which greatly at-
tributed to the effect of the bandage in restraining those priapismal
erections, so painful and harassing to the patient after sleep, as often
to make him suddenly spring up in his bed. With the view, also, of
promoting the same sedative effect upon the erectile tissue, and keep-
ing the urethra clean, I directed the sulph. zinci and sacchar. saturn., of
each two grains, to be dissolved in four ounces of rose or rain water,
and used as an injection, three or four times per day; the patient con-
fined to half diet, quietude, and his room. These instructions were
rigidly observed, and the result was, that in forty-eight hours the dis-
ease was completely removed, a result equally gratifying to the
hitherto unfortunate patient as it was flattering to his fortunate phy-
sician.

This method of treating gonorrhœa, is certainly novel, and also
important, since it affords certain and prompt relief. I say certain
and prompt, for such has been the uniform result of five or six years
hospital practice, in the U. S. army, where I have had the very best
opportunities of testing the value and certainty of this remedy. I
can, therefore, recommend it, with every confidence of success, to
the attention of my professional brethren. Indeed, I have often been
told by gentlemen whom I have treated for this disease, that they
now disregard it, as they find no difficulty in curing it in two or
three days. It may be necessary, indeed important to the success of
this remedy in the hands of others, that I should make some brief re-
marks upon the modus operandi of the bandage in the cure of gonor-
rhœa, and also give particular directions for its application. In
regard to the former, I deem it only necessary to say, in general
terms, that it prevents the reflux of blood into the cellular tissue of
the penis, and keeps in a state of comparative paralysis or rest, that
portion of the penis, which is the immediate seat of the disease; an
object, certainly, of primary importance, in the successful treatment
of every grade of inflammatory action, and constituting the basis of the
method here proposed. The promotion of this object, as will readily
be perceived, is also greatly facilitated by the evaporating solution

employed in conjunction with the bandage. As regards the applica-
tion of the bandage itself, there is nothing peculiar or mysterious
about it. Much tact, however, is requisite, in properly and success-
fully applying it. There is no instrument in surgery requiring a more
skilful hand in its general applications than the bandage, and none,
from the judicious and appropriate use of which, the enlightened sur-
geon can derive greater advantage to his patient, or credit to himself.
In the particular case under consideration, the bandage should be a
fine piece of old linen, about an inch and a half wide, and long
enough to envelope the whole length of the penis two several times;
the penis being as much elongated as possible without erection, be-
ginning at the glands, which, first of all, should be covered with a
light dossil of lint. The bandage should thus be placed in a longitu-
dinal direction to the extent of an inch or two, upon the upper and
anterior portions of the penis, thence passing it over the glands and
underneath to a corresponding point to the end of the bandage above,
and retained firmly in that situation by the thumb and index finger of
the left hand, until by a change in the direction of the bandage, at
this point at right angles, it is passed across the penis from below,
upwards, enclosing and confining tightly the lint and end of the band-
age to their proper place. The application of the bandage should
then be continued with considerable tightness and perfect equability,
as already directed. It is next immersed in the solution, which com-
pletes the dressing. All this, I will further observe, must be pre-
ceded, firstly, by urinating, if necessary, and then using the injection,
as directed, which should be done carefully and with an ivory syringe,
always looking well to the point of it, that it be perfectly clean.
Thus, none of those unpleasant consequences need be apprehended,
which, like all other abuses of valuable remedies, have brought the
use of injections into bad repute among the profession generally, in
application to the disease we have just considered.*

New Orleans, January, 1836.

---

*[We have unhesitatingly given insertion to the above method of treating go-
norrhœa, inasmuch as the author claims *extensive experience*, the best test, in sup-
port of its efficacy. Nevertheless, we must confess, that the practice is so repug-
nant to our theoretical notions, that we would hesitate to resort to the practice
unless we were to receive further evidence of its advantages in the hands of
others.—Ed.]

ART. XII. *Case of malformation and spontaneous amputation of one of the lower extremities of a fœtus in utero.* By F. P. FITCH, M. D., of New Boston, N. H.

Sir—Having noticed in your journal, (No. 21, November, 1832,) "Observations on the spontaneous amputation of the limbs of the fœtus in utero," I am induced to communicate the following case of *malformation and separation of one of the extremities of the fœtus*, which has since occurred in my practice. Although I am unable to discover any connexion between the condition of the mother and the appearance that the child presented after birth, or to throw a ray of light upon the causes which operated in effecting the separation of the limb, yet, as instances of "spontaneous amputation" are, I believe, of infrequent occurrence, I shall relate briefly the more prominent features of the case throughout.

Mrs. ——, a healthy labouring woman, mother of six robust children, but who had suffered an abortion from injury in her last pregnancy, was alarmed, March 17th, about the sixth and a half month of gestation, by a sudden discharge of the liq. amnii. This discharge at first, though unattended by pain, was abundant, and continued in decreasing quantities forty-eight hours.

On the morning of the 21st, a substance escaped from the vagina, which was found to be a perfectly formed fœtal foot, apparently separated at the ankle joint, and in a state of complete preservation. At this time the abdominal tumour had greatly diminished; the fœtal movements within the womb were active, but no expulsory efforts had occurred. On the next day a slight uterine hæmorrhage supervened, which, on the 27th, had so much increased as to require attention. For three days the bleeding was arrested almost entirely; but at the end of this period, although there was yet no indication of an effort in the uterus to throw off its contents, while the woman was engaged, contrary to earnest entreaties, in severe exercise, the flowing was renewed, and the patient lost at a single gush, according to her own statement, "more than a quart of fresh blood." Faintness was induced, but by attention to prescriptions she was again made comfortable. In this condition the patient remained till the morning of the 5th April, when, after a labour of ordinary duration, she was delivered under circumstances of extreme danger from the excessive flooding that ensued. The cord was ruptured at the moment of delivery by a sudden movement of the mother, and was afterwards found to be unusually weak throughout its whole length.

The child exhibited signs of life more than half an hour after birth, and on examination presented the following condition:—It had attained full size for that period, (about the seventh month,) and was apparently vigorous. Situated a little to the left of the centre of the forehead was a horny protuberance, of the size of the middle finger, projecting about half an inch. Below, upon the face, was an extensive deformity, caused by the entire absence of the upper lip and bones beneath to a great extent. This last malformation the mother *very confidently* attributed to an accidental view of a person whose upper lip and part of the nose, had been destroyed by a cancerous sore. But what excited the greatest interest in this case, and, in connexion with the early discharge of the foot, gave origin to this communication, was the condition of the right lower extremity. As far as the knee joint this limb did not differ in appearance from its fellow, but at that point it terminated abruptly, and over the end the skin had contracted uniformly from every side towards the centre, without, however, forming a complete cicatrice. With these exceptions, the child was perfect.

It was fifteen days previous to the birth of the child that the foot, exhibiting no traces of decay, was passed from the vagina, without pain, and unattended by any sanguineous discharge; and it should be added, that, two days after delivery, a substance escaped which had every appearance of having been the portion intervening between the knee and ankle joint, but at that time in a stage of decomposition so advanced, that it could not be well examined. Upon the foot the place of separation was contracted to the size of a small pinhead, and the healing process had apparently been as perfect, and had progressed very nearly as far, as that on the lower extremity of the femur.

In the above case is presented a remarkable property of the impregnated uterus. As the contractions or healing upon the divided surfaces of the limb could not have been accomplished at once, it appears evident that in this instance the uterus not only preserved a detached portion of the fœtus from decay, but maintained its vitality also; nor is this supposition contradicted by the putrescent condition of another portion of the limb, as that had remained exposed to the warmth of the body and other influences two days after delivery of the child.

The mother recovered rapidly, and in eight months was suddenly delivered again of twins, one of which survived two, and the other ten days.

New Boston, N. H., February, 1836.

REVIEWS.

Art. XIII. *On the Diagnosis of Diseases of the Chest; based upon a Comparison of their Physical and General Signs.* By W. W. Gerhard, M. D., Physician to the Blockley Hospital; Lecturer in the Philadelphia Medical Association; Fellow of the Philadelphia College of Physicians; Member of the Societé Médicale d'Observation, and of the Societé Anatomique of Paris, &c. Philadelphia, 1836.

We hail with peculiar pleasure the appearance of the above work. Coming, as it does, from the pen of one of our own countrymen, profoundly acquainted with the subject, it must necessarily exert a happy influence upon the cultivation of this branch of medical science amongst us. For, although the advantages of auscultation are now so clearly established that few can be found hardy enough altogether to deny its utility, still there are undoubtedly many physicians who are very far from appreciating its vast importance. Nevertheless, without a resort to this mode of exploration, the practitioner will find it in most instances very difficult, and sometimes impossible, to determine either the nature or extent of any disease of the chest which he may be called upon to investigate, and consequently to adopt with promptness and confidence the course of treatment best adapted to its alleviation or cure. But the advantages of auscultation do not stop here —it has far higher claims upon our attention, since it has been principally through its means that many new and interesting facts have been added to our science, and also that the general history of pulmonary diseases has been brought to a degree of perfection so far beyond what had been previously attained.

That the discovery of auscultation has been of the greatest utility in advancing our knowledge of diseases of the chest, no one can doubt who will take the trouble to examine their history as at present established, and compare it with the accounts of the older writers. He will find that there is no disease in relation to which we have not now a much more accurate and full detail of the symptoms than formerly, and also a far more correct estimate of their value in diagnosis and prognosis, as well as of their relations to the pathological conditions of the different tissues and organs.

It has been not unfrequently asserted that those who practiced auscultation were in the habit of depreciating the importance of the

functional and general symptoms of diseases of the chest. What-
ever foundation there may have been for this remark in individual
instances, as a general rule it is undoubtedly incorrect. To be con-
vinced of this, we need only to look into the works of the most
experienced auscultators since the time of Laennec. Let any one
peruse the work of Louis on Phthisis, and he cannot fail to be
struck with the unwonted attention which the author has given to the
examination of the functional symptoms of the disease, and also with
the great importance which he attaches to a proper consideration of
them in the formation of an accurate diagnosis. It will be found that
the condition of the digestive apparatus, of the nervous system, as
well as of the muscular and cellular tissues, &c., has been investigated
most minutely—that still greater attention has been paid to the exa-
mination of the character and seat of the pain, the kind of cough and
nature of the expectoration, the alteration and loss of voice, the dis-
charge of blood from the lungs, the modifications which pleuritic
inflammation undergoes when occurring in a tuberculous subject, the
connexion of pneumothorax with the same complaint, together with the
dependence of chronic peritonitis upon the same general cause. These
and a number of other circumstances attendant upon the disease,
have been described with the greatest clearness and precision, and
(which particularly concerns our present argument) most of them
have been brought out in bold relief as diagnostic signs, and their
importance as such established upon the firm basis of observation.
The same general remarks will apply to the history of almost every
other disease of the chest, as will appear by referring to the works of
Andral, Bouillaud, and others. In fact, were the practice of auscul-
tation from this moment abandoned, medicine would still remain
greatly the gainer by the discovery of this means of exploration, on
account of the many new facts with which our science has directly or
indirectly been enriched through its means.

But, whilst admiring the general beneficial influence which the
discovery of auscultation has exerted upon the progress of our science,
we must not omit to impress upon the physician the importance of a
practical acquaintance with it at the bedside of his patients. In-
deed, no one can now be held excusable who omits to acquire this
knowledge so far as circumstances will permit. As his acquaintance
with the subject increases, he will find that diseases of the thoracic
cavity present themselves to his mind under a new aspect—that
many of the doubts and difficulties which he had formerly laboured
under with regard to the diagnosis of these diseases will vanish—
that he will be able in individual cases to follow the disease from
stage to stage, and appreciate, with a certainty which he could not
previously have thought possible, the various changes which the pul-
monary tissue undergoes from day to day in its progress towards a
favourable or unfavourable result.

The importance of diagnosis is generally very much undervalued in
this country, partly perhaps owing, so far as regards inflammatory dis-
eases, to our attaching too exclusive an importance to the study of the

nature, symptoms, and treatment of inflammation in general, without sufficiently considering the important modifications which it undergoes in many respects, according as it is seated in one or other of the organs or tissues of which the body is composed. All the knowledge which we possess of the general doctrine of inflammation, and of the functions and properties of the different organs and tissues, would never enable us to determine á priori, most if any of the modifications above alluded to; an acquaintance with which, in fact, can only be acquired by a patient and careful investigation of all the phenomena which accompany each separate lesion. In confirmation of the above remarks, let us look for a moment at a few of the prominent features of two of the most important acute inflammations occurring within the thoracic cavity, viz. pleurisy and pneumonia. The former, when attacking an adult not very far advanced in life, and who at the time of invasion is free from any chronic disease of the chest, is an affection of no very grave character, and which will almost necessarily terminate favourably, without the employment of any active treatment, by a simple attention to diet and regimen. To secure the most rapid and favourable termination possible, it is only necessary in addition to this to make use of moderate depletion, combined with the external application to the side affected of such substances as are calculated to favour the absorption of the liquid effused into the cavity of the pleura. Reasoning á priori, we should have come to an exactly opposite conclusion, and classed simple pleurisy among the most violent and fatal diseases, because the inflammation of serous membranes generally possesses this character. Pneumonia, on the contrary, is a disease of the most serious importance—is frequently characterized by the most violent symptoms, especially in its latter stages, when the cerebral functions are much impaired—and demands the most energetic treatment. Perhaps there is not in the whole catalogue of diseases to which we are liable, one in which it is so important to make use of large and frequently repeated bleedings, and that too in the very early stage of the complaint. Now, it is absolutely impossible in a considerable proportion of the cases of pneumonia, that the treatment so important to the welfare of the patient can be confidently pursued unless auscultation and percussion be employed as a means of diagnosis; for the inflammatory condition of the lungs constituting pneumonia is sometimes accompanied with such slight functional disturbance of those organs, that without the aid of the physical signs the practitioner would remain ignorant of the nature of the disease until revealed to him by a post-mortem examination. Many other cases also occur in which, without the same assistance, it would be difficult, not to say impossible, to arrive at a certain diagnosis during the early stage of the disorder, the moment of all others when it is of the greatest consequence to employ with promptness and energy the most active remedial means. Moreover, the treatment generally requisite is one which would be entirely unjustifiable, were the inflammation confined to the pleuræ or the bronchial mucous membrane.

The object of Dr. Gerhard in the work, the title of which we have

placed at the head of this article, is to lay before the reader a concise view of the most prominent symptoms of each one of the numerous diseases of the chest—to give a more detailed account of their physical signs, and to indicate the several conditions of the thoracic viscera with which these are inseparably connected, thereby presenting the data by a careful comparison between which the diagnosis is to be determined.

In the introductory chapter, which is devoted to a few remarks upon the relative importance of the physical and functional signs, the author makes the following observation:—"Diseases of the lungs may be recognised tolerably well by the rational signs alone; but it is as unwise in a physician to reject the aid of auscultation, as it would be in a surgeon to despise the use of the sound"——

We entirely assent to the truth of the above proposition in the greater proportion of cases; but, at the same time, we believe that very few are able so to recognise them in most instances, unless they have acquired that precise knowledge of the rational signs which is only to be obtained by a careful study of these diseases with the aid of auscultation and percussion.

In the second chapter, we have a short account of the conformation of the chest, and of the mode in which ocular examination should be performed. The morbid changes which take place in the external conformation of the chest are very various, and frequently afford very important assistance in the diagnosis of its diseases, and for this end it is necessary that they should be examined with the most scrupulous accuracy. The author's account of this subject is chiefly derived from the instruction of Louis, and is particularly worthy of a careful perusal, as it notices several alterations of form, in general but little understood or appreciated.

The four following chapters contain a description of the sounds which auscultation and percussion will enable us to distinguish, and of the mode in which these operations can be best performed. As this description, except in one particular, does not essentially differ from that usually given, we shall dismiss its consideration with a few remarks upon the part alluded to.

It has been known for some time to several auscultators, that the respiratory murmur was, under ordinary circumstances, more harsh and blowing under the right clavicle than under the left. A knowledge of this difference is of great importance in the examination of an individual in whom the existence of tubercles at a very early stage is suspected, otherwise we might sometimes be led to suppose that there was a small deposit of these bodies at the summit of the right lung, when in fact it was perfectly healthy. Of the causes of the difference alluded to, we think that the author has given a very satisfactory account. Starting from the well known anatomical fact, that the right bronchus is shorter, more horizontal, and of much larger diameter than the left, he has pointed out a circumstance familiar perhaps to few except professed anatomists, viz. that the bronchial tubes distributed to the right superior lobe are, even after they have pene-

trated some distance into its substance, of considerably greater diameter than the corresponding ones on the left side. This circumstance, taken in connexion with the fact that the former have a much more direct communication with the trachea, owing to the horizontal course of the right bronchus, is, he thinks, entirely sufficient to account for the difference of sound under the two clavicles. The explanation is novel and ingenious.

The history of the bronchial respiration is very clear and full. He has divided it into three kinds, viz. the rude, the bronchial, and the tubal. The rude respiration was first noticed by Louis, and differs from the true bronchial; the vesicular murmur being still present, though in a slight degree in the former. This mode of respiration is particularly observable in the early stages of phthisis. The tubal respiration does not essentially differ from the bronchial, but is merely an exaggerated form of it, and we doubt the necessity of treating of it separately.

The remainder of the work is chiefly occupied with the consideration of the different diseases of the chest. In tracing the history of emphysema of the lungs, the author remarks that

"The conformation of the chest is altered; the distension of the lung, which is increased by the efforts made by the patient in the act of respiration, gives rise to permanent enlargement of the thorax. The dilatation is of two kinds—one is the rounded form given to the thorax of emphysematous patients by the strong efforts of respiration. This general dilatation is not confined to a portion of the chest near the enlarged vesicles, and is, therefore, probably owing to the strong efforts of inspiration, and to the imperfect expiration characterizing the disease."

We very much doubt the truth of this opinion, because a general dilatation, strictly speaking, is very rare in this disease; and, in fact, in the immense majority of cases, the enlargement is confined to a portion of one side only. It is stated by Dr. Louis,* that "of forty-five cases of emphysema in which he had studied the configuration of the chest with care, one only presented a general change of form—and that in all the others the dilatation of the thorax was partial, and was confined to one side of the chest, except in four cases.

As regards the situation of this dilatation, Dr. G. contents himself by stating that it is generally found over the anterior margin of the lung, on each side of the sternum. This is hardly sufficiently precise, for, although its seat is not always the same, it commonly begins under one of the clavicles, and extends downward towards the mamelon, and is from three to six inches broad.

There is still another alteration of form, not spoken of by Dr. Gerhard, and which occurs above and behind the clavicles. It consists in the partial or entire obliteration of the supra-clavicular depression, in place of which there is sometimes an absolute prominence. This prominence is also commonly confined to one side of the chest, and is particularly important as a means of diagnosis, because it is found in almost every case of emphysema of the lungs, and is never an attendant upon any other disease, so that its existence alone is sometimes suffi-

*Dict. de Medecine. 2nd edition. Vol. XI. p. 348.

cient to determine the nature of the affection.   Previous to the time of Laennec, emphysema of the lungs was hardly known; and even until very lately it received but little attention.   It nevertheless possesses great interest and importance, not only on account of the many interesting facts which its history presents to our notice, but because it may be confounded with the early stage of phthisis by those who are not well acquainted with its symptoms; an error which it is of the utmost importance to avoid, as both the prognosis and treatment are very different in the two diseases.   In many cases this disease developes itself in a *slight degree* during childhood, but, in its severe form, it is almost, if not entirely, confined to adults.   This is perhaps all that Dr. G. means to say, when he states that it is "very rare in children," for with them it hardly ever shows itself in a form requiring the attention of a physician; nevertheless, it has been clearly proved, we think, by recent investigations, that in many instances, and particularly where an hereditary predisposition to the complaint exists, its first symptoms may be traced to very early life.   Chronic bronchitis is almost always an attendant upon emphysema in some part of its course, but the latter is frequently developed before the former makes its appearance.   Laennec was of opinion that the dilatation of the vesicles was in most cases produced mechanically, owing to the difficulty with which the air is expelled from the lungs in certain forms of bronchitis, but the frequent occurrence of this dilatation in persons who have not previously been affected with catarrh renders it probable that this opinion is far from correct.

When alluding to the diseases with which emphysema may be complicated, the author makes the following important observation:—

"Tuberculous consumption is not very often connected with this lesion; the two diseases seem, in some degree, to counteract each other, and patients afflicted with the one are rarely attacked by the other."—page 77.

This is an exceedingly interesting fact, and one which, we think, has lately been clearly established.   It seems to lend some support to the observations of a late British writer, who states that he has sometimes succeeded in curing phthisis in its earlier stages, by causing the production of an artificial emphysema.   He asserts that, when this effect has been produced, the further secretion of tuberculous matter has been suspended, and the patients have been gradually restored to health.

The 9th chapter contains a full and clear description of the diagnostic characters of pneumonia, and also some interesting remarks upon the varieties which it presents, according to the age of the patient, and especially upon that form which occurs in children under six years of age.   This last is called lobular pneumonia, and, for its more complete elucidation, the profession is much indebted to the researches made by Dr. Gerhard during his residence at the *Hôpital des enfans malades*, at Paris.   Some of these have been detailed in a former number of this journal.   In the present work we have a short summary of the most prominent features of the disease. The following

extract will sufficiently show its great importance, as well as the wide difference between it and ordinary pneumonia.

"The disease is almost always double, and begins at the lower lobes of both lungs, extending from them to the upper lobes, along the posterior margin of the thorax. It is rarely complicated with pleurisy. This variety almost always succeeds to chronic catarrhs, or other diseases, as the exanthemata, &c.; it, therefore, has not a definite duration. There is no expression of pain, no expectoration, and sometimes no cough; but the disease is in a great degree latent, and notwithstanding its extreme frequency, is often mistaken. There is not always a rhonchus, but where the disease succeeds to catarrh, a mucous or sub-crepitant râle is heard. Bronchial respiration is never so distinct in this disease as in idiopathic pneumonia, and scarcely ever becomes tubal; it is best heard at the root of the lungs," &c.

The symptoms of this variety should be well understood by every practitioner, also the circumstances under which it is most likely to occur, so that he may be on his guard and prepared to appreciate its earliest symptoms. It frequently attacks children who have been labouring previously under any of the exanthemata, whooping cough, &c.

The pneumonia of aged people, like that of children, is very frequently latent, and is to be recognised principally by the physical signs.

In speaking of the physical signs of ordinary pneumonia, Dr. Gerhard has laid great stress upon the value of bronchial respiration, which is usually described as belonging exclusively to the second stage of the complaint. This is true only of the most perfectly formed and pure bronchial respiration; whereas, as Dr. G. observes, an imperfect bronchial or rude respiration is one of the first signs discoverable by auscultation, and is frequently developed before the crepitant rhoncus is observed.

These two sounds are found occurring together and in the same part of the lung in the first stage of pneumonia, as we have frequently had opportunities of observing, and under these circumstances the existence of the one serves to throw light upon the character of the other.

Dr. G. has treated of gangrene of the lungs as a disease entirely distinct from pneumonia, and not as one of its terminations. Some physicians are of opinion that idiopathic gangrene of the lungs is not preceded by any inflammatory action in the part affected; but whether this be true or not, it is quite certain that when this lesion occurs, the disease is generally characterized from its commencement by symptoms very different from those of ordinary pneumonia. It bears, in fact, a strong analogy to malignant pustule and other diseases essentially gangrenous. The general symptoms are of much greater value than the physical signs in the diagnosis of this affection. It is usually accompanied with great prostration and anxiety, the skin is of a dirty yellow colour, and the sputa have a peculiarly offensive and fetid odour; this last sign is pathognomonic. If the ear is applied to the chest over the part affected, a mucous rhonchus is heard during the early stage of the complaint, and at a later period a loud

gurgling is found, accompanied sometimes with cavernous respiration and pectoriloquy.

Phthisis is next treated of. The alterations of structure which take place in the lungs of phthisical patients, are first described, and, afterwards, the physical signs connected with the several alterations spoken of.

Our author observes that "these (the physical signs) necessarily vary with the different stages of the disease."

"In the first stage, when there are but few scattered tubercles, it is impossible to ascertain their existence by physical examination. When the tubercles are more numerous and larger, and the disease is fully formed, though it should not yet have passed into the second stage, the physical signs become evident."—page 105.

There is a degree of obscurity in the remarks quoted, which might lead to the supposition that the physical signs were of little importance, except in cases where the disease was considerably advanced, and approaching its second stage. This idea, is, we think, incorrect, and one which, most probably, the author did not intend to convey, for shortly afterwards he observes that "as they [tubercles] are both more numerous and are developed at an earlier stage at the top of the lungs, a small number will give rise to considerable local alteration of the respiration.—page 105.

Hence, it would seem reasonable to conclude that the first stage of the disorder should in a majority of cases be marked by decided physical signs, and this, we believe, is in accordance with experience.

In speaking of the alterations of respiration in this stage, Dr. G. makes mention of only one, viz. the increase of the blowing sound; but this is by no means the only one which is observed, for the respiratory murmur is frequently diminished in intensity immediately under one or both clavicles, where there is also sometimes heard a confused sound, very different from that produced by the regular open expansion of a healthy lung. By a singular oversight, also, the obscurity of sound upon percussion, in the same part, has been left rather as matter of inference than directly expressed. Nevertheless, this slight obscurity on percussion is one of the most important signs at this period, especially when considered in connexion with the alterations of the respiration above alluded to.

The physical signs of the second and third stages are well described. The author next proceeds to consider the conformation of the chest—the character of the cough and expectoration, the general emaciation, &c.—so far as they are valuable as means of diagnosis. He lays much stress, and with justice, upon the occurrence of hæmoptysis, which has been incontestibly proved to be an almost certain sign of the existence of tubercles, except in cases where the spitting of blood follows upon injuries of the chest from external violence, or is connected with some derangement of the menstrual function.

Pulmonary consumption is generally accompanied in some part of its course by lesions of other organs, which give rise to their peculiar train of symptoms; and as some of these lesions are developed occa-

sionally in the very early stage of the disorder, their occurrence in particular instances is sometimes of material assistance in forming our diagnosis. Their value, in this point of view, depends upon their necessary connexion with the existence of tubercles.

"From the very constant and early deposit of tubercles at the summit of the lungs, an examination of the physical signs of these organs will often throw much light upon the tuberculous diseases of other viscera, and especially those of the serous membranes. On the other hand, a knowledge of the laws governing the deposit of tubercles in different organs of the body, will facilitate the diagnosis of obscure cases of pulmonary consumption. The chief of these laws, (for which we are indebted to M. Louis,) are as follows, &c." p. 117.

We shall merely allude to two or three by way of illustration. In adults, whenever tubercles are developed in any of the organs of the body, they exist at the same time in the lungs. The exceptions to this law are exceedingly rare. Another is, "that chronic peritonitis, which does not follow the acute form is always tuberculous," *i. e.* that chronic peritonitis, which has come on gradually, and has always from the *commencement* presented more or less of a chronic character, is necessarily dependent upon the formation of tubercular matter in the peritoneum or its immediate neighbourhood.

If we consider these two laws in connexion with one another, it will be evident that the occurrence of chronic peritonitis in the form which we have described, is a certain sign of tubercles in the lungs. We have seen Dr. Louis diagnosticate phthisis by this means, even where cough and every other symptom referrible to derangement of the respiratory organs was absent; and, moreover, have seen the diagnosis uniformly verified by the subsequent course of events.

According to our author, the disease of children known under the name of meningitis, or meningo-cephalitis, is always connected with tubercular deposits in one or more of the organs of the body. This conclusion he arrived at during the course of a series of observations made at the infant's hospital in Paris.

In giving a summary account of the diagnosis of phthisis, Dr. G. has enumerated a variety of circumstances in which it differs from chronic catarrh, and immediately afterwards observes, that "when two or more of the general signs just mentioned are combined, they indicate the probable existence of phthisis, especially if they do not appear to be dependent upon other diseases." p. 120.

We really are at a loss to understand the author's meaning in the above remark, for the general signs alluded to are mostly of a character calculated only to render more probable a diagnosis already partially formed upon other grounds, and so far from two of them combined "indicating the probable existence of phthisis," the simultaneous occurrence of the first seven would hardly do so unless accompanied by local symptoms indicating disease of the respiratory organs. We think that the author would have given a much more complete and clear view of the subject, if, besides pointing out the value of each of the signs and symptoms considered in an isolated manner, he had collected them into groups, and indicated the greater

or less degree of probability, or the absolute certainty, which each of these several combinations afforded in the diagnosis of the disease.

It will be unnecessary to examine in detail the histories of the remaining diseases of the chest. Enough has been said to enable the reader fully to comprehend the object of the author, and to understand the mode in which the work has been executed.

It is impossible to convey to the mind an accurate idea of the different sounds derived from auscultation of the chest, through the medium of description alone. This knowledge is best acquired in a large hospital, where the student has the opportunity of frequently applying his ear to the chests of patients previously examined by an experienced auscultator, who at the same time points out to the pupil the character of the sounds observed in each particular case.

But as this mode is completely without the reach of the greater proportion of the profession in America, the author has endeavoured to supply to a certain extent this deficiency in the concluding chapter of the work. He has there enumerated the types of the different sounds, and pointed out certain marked conditions of the system, in which they will be almost certainly found to exist. These cases present themselves from time to time, in the practice of every one; and when they do occur, the physician should carefully examine the chest, and he will be almost certain to find the type of one or more of the four principal sounds. After having repeated this several times, he will, with attention, have acquired an accurate idea of these types, and from thence proceed to the study of their modification with comparative ease.

Upon the whole, we think that the work of Dr. Gerhard is one of the best productions of the kind which we have seen. In many respects it is more full and complete than any which have been hitherto offered to the public. The author has brought to the task a thorough practical acquaintance with the subject; and, moreover, from his knowledge of the present state of medical science abroad, he has been able to embody in his work some of the latest discoveries of the most celebrated European physicians. It is entirely unencumbered by the least unnecessary detail, every thing at all foreign to the subject being carefully excluded; but, at the same time, perspicuity has been sometimes sacrificed to this disposition to render it as concise as possible, and this defect has been further increased by a negligence in the choice of words, and, in fact, a general inattention to clearness and beauty of style, but too common in medical productions. Had the author more fully elaborated his ideas in many places, the value of the book would have been materially enhanced. We hope that the hints which we have thrown out may not be forgotten on a future occasion.

T. S.

Art. XIV. *Researches on the Effects of Blood-letting in some In-flammatory Diseases, and on the influence of tartarized antimony and vesication in pneumonitis.* By P. Ch. A. Louis. Translated by C. G. Putnam, M. D. With preface and appendix, by James Jackson, M. D., Physician of the Massachusetts General Hospital 1 vol. pp. 171. Boston, 1836.

This is the last of Louis's publications which has reached this country. It is the only one, so far as we know, which has been honoured with an American translation. We do not hesitate in pronouncing it one of the most important medical works of the present century; and it is so on two accounts. In the first place, it is important for the new and positive knowledge which it gives us in relation to the treatment of some diseases. In the second place, and more especially, it is important as the first formal exposition of the results of the only true method of investigation in regard to the therapeutic value of remedial agents. It might have been supposed, that in the course of some thousands of years, during which blood-letting has been almost universally resorted to in the treatment of certain acute inflammatory diseases, the actual efficacy of this operation would have been clearly and precisely determined. Amid the chaos of jarring and ever changing opinions concerning the properties and application of *all* the articles of the materia medica, physicians had laid the flattering unction to their souls, that the effects of blood-letting in the cure of simple acute inflammation of the lungs, occurring in adult subjects, free from any other disease, were absolutely and accurately known. Here, at least, they had supposed themselves standing on solid ground. Now and then, to be sure, in the lapse of time, and here and there, over the wide and cultivated realms of medical science, might be heard a solitary voice, uttering its anathemas against the murderous practice, and proclaiming that the day of sthenic diseases had gone by. But, with a few exceptions, and with some slight differences of opinion, the real value of this ancient therapeutic measure in the treatment of the disease spoken of above was considered as definitively settled. How far, and precisely how far, this opinion is correct, remains yet to be ascertained. Like most other subjects of prominent and practical importance in our art, it is undergoing, and is destined to undergo, a more severe and rigorous scrutiny than any to which it has hitherto been subjected. The first fruits of this investigation are contained in the book before us, and, deferring some further observations on the different topics suggested by the work itself to the close of this notice, we shall present to our readers, in as concise a form as possible, the conclusions to which Louis and Professor Jackson have arrived.

The first series of cases of pneumonitis or of pleuro-pneumonia, analyzed by Louis, was observed at La Charité, between the years 1821 and 1827. The cases were seventy-eight in number, twenty-eight of which were fatal. The subjects of them were all in perfect

health at the time when the first symptoms commenced. The following tabular view exhibits the relation between the length of the disease on the one hand, and the period of the first bleeding, together with the number of its repetitions, on the other.

1	2	3	4	5	6	7	8	9
10 3	7 3	19 3	19 3	28 2	13 1	24 2	19 2	35 1
12 2	10 2	29 3	12 2	17 3	16 2	12 4	12 1	11 2
14 2	12 2	20 2	15 2	40 2	23 3	19 2	18 1	17 2
		20	22 4	13 2	35 5	18 2	20 3	30 3
		16 3	12 4	21 2	17 2	15 2	13 2	
		17 4	21 2	13 2		27 2	21 2	
			25 3					
			28 4					
			40 2					
			16 2					
			12 4					
12 2⅓	10 2⅓	20 3	20 8	22 2	21 2⅖	19 2⅓	17 2	23 2

The figures upon the horizontal line above the columns indicate the day when the first bleeding was performed; the figures on the left in each column mark the duration of the disease; those on the right the number of bleedings; and those on the horizontal line below show the mean duration of the disease, and the average number of bleedings.

An examination of the foregoing table would, at first sight, lead to the conclusion that the abstraction of blood during the first two days of pneumonitis, had very much abridged the duration of the disease, while, after these two days, it would seem to make but little difference whether blood-letting was commenced a little sooner or a little later.

"But the amount of difference which exists between these two results, leads us to suspect their exactness; and a thorough examination does in truth show, that the influence of bleeding, when performed within the two first days of the disease, is less than it seems to be at first sight, and that in general its power is very limited.

"Indeed, among the cases of the same column in which the antiphlogistic treatment was instituted on the same day, (those of the first and second excepted) the duration of the disease exhibits the greatest variety. Thus in the fourth column, some were convalescent on the twelfth day, others (not to take the extreme) the twenty-fifth and twenty-eighth. This we cannot attribute to the violence of the disease, which was the same; nor to the difference of the treatment, which was equally energetic, and directed by the same physician. Whence it seems to result, rigorously, that the utility of bleeding has been very limited in the cases thus far analyzed.

"Differences no less considerable in the length of the disease would unquestionably have existed among the cases bled within the first twenty-four or forty-eight hours, if their number had been greater. And on the same supposition, the difference of the mean duration of pneumonitis, in subjects bled the two first days, and those who were bled at a later period, would have been less considerable. So that we should get nearer the truth, should we estimate the real difference effected in the progress of the disease by the greater or less promptness with which we have had recourse to bleeding, by taking the mean duration of the disease on the one side, in the cases bled during the four first days: and on the other, in those who were not bled until the fifth to the ninth inclusive. And then the

mean duration of pneumonitis would be seventeen days among the first, and twenty among the second.

"But the average given by the table is probably still a little too favourable in respect to the patients bled within the two first days, for another reason; to wit, that, not having committed any error of regimen before the bleeding, these patients were in a condition the most favourable for treatment; this was not the case with those in whom blood-letting was employed at a later period, and among whom many in each group had committed errors in regimen; some had taken strong drink, such as hot sweetened wine, one or many days in succession, in a greater or less quantity; some had even taken brandy. The length of the disease must certainly have been increased by these errors."

The average age of the patients bled before, and of those bled after the fourth day, was nearly the same. It was thirty-three years in the first set, and nearly thirty-six in the other. Neither was there any considerable difference in the severity of the disease in the two groups of cases. In establishing the duration of the disease, the commencement was dated from the period when the patient experienced a more or less violent febrile affection, followed or accompanied by pain on one side of the chest, and by rusty sputa; the time of convalescence was fixed at the period when the patient began to take some light nourishment; three days at least after the febrile action had ceased; although the local symptoms had not disappeared in every case; that is to say, at a period when percussion of the chest did not always elicit a perfectly clear sound at the part affected, and when the respiration was not very pure, the ear still discovering here and there some crackling and traces of crepitation.

"The facts relative to the fatal cases confirm these conclusions, and seem still further to limit the utility of blood-letting. Out of twenty-eight cases in question, eighteen were bled within the four first days of the disease, nine from the fifth to the ninth; and if on the one hand, we take together all the patients who were bled for the first time within the four first days of the pneumonitis, whatever may have been its termination, and on the other hand all those who were bled at a later period, we have, in the order indicated, on one side, forty-one cases, of which eighteen, or about three-sevenths, were fatal; and on the other, thirty-six, of whom nine, or only one-fourth, were fatal: a startling and apparently absurd result; the explanation of which is found, to a certain extent, in the following table. This table, which relates to the fatal cases only, shows in each of the columns from left to right, the duration of the disease, the number of bleedings, and the ages of the patients; whilst the figure above each column indicates the day when the first bleeding was practised.

1	2	3	4	5	6	7	8	9
6.5 18	53 5 65	4 1 57	29 2 19	16 4 58	32 4 20	20 2 68	25 1 40	22 1 50
	12 3 69	16 2 54	29 4 46	8 2 36	10 2 40			
	8 2 65	6 3 30	12 1 85	9 4 24	29 3 24			
	12 1 55	6 4 47	15 3 37					
	17 7 75	47 2 75	17 1 67					
		11 4 45	20 3 22					
6 5 18	20 3⅗ 66	15 3 51	20 2¼ 49	11 3 48	33 3 28	20 2 68	25 1 40	22 1 50

"We see, in effect, that the patients who were bled within the four first days of the disease, with the exception of one in the first column, who was eighteen years of age, were older than those who were not actively treated until after this period, in the proportion of fifty-one to forty-three years: this difference may not seem great, but it may have had great influence on the issue of the malady. Indeed the difference in question, that of age, is much less, if, taking the fatal and suc-

cessful cases indiscriminately, we add together on the one hand all the patients bled within the four first days; and on the other those who were not bled until a later period; for we then find that the mean age of the first class is forty-one, and that of the second, thirty-eight. But it is nevertheless true, that the number of patients bled on the first day, who had passed the age of fifty, was nearly twice as great as that of the patients of the same age, who were bled at a later period. This must have had great influence on the mortality.

"But it is not enough to have studied the effects of blood-letting upon the progress and termination of the disease; its influence on each particular symptom must be separately investigated. Let us begin with pain.

"*Pain* was not arrested by blood-letting in any of the cases bled within the four first days of the disease. On the contrary, it generally increased during the succeeding twelve or twenty-four hours: and its mean duration, usually in proportion to that of the disease, was six days among those who were bled during the four first days; eight and a fraction among those bled at a later period. It yielded more readily to local than to general bleeding.

"The *sputa* regarded as characteristic, were *adhesive, rusty, or like apricot jelly, and semi-transparent:* the mean duration of these sputa varied like that of the pain, or nearly so; being five days in patients bled within the three first days, six in those bled within the three following, seven in cases where the bleeding was from the seventh to the ninth day inclusive.

"The morbid character of the sputa became more distinct after bleeding, in the greater part of the cases in which it was employed at the onset of the disease. On the contrary, the sputa were less morbid on the day following the bleeding among the patients who were not bled until a late period.

"It seems to me, this can only be explained by admitting that the disease had approximated its natural termination in this group, and that it was more or less distant from it in the other. An important fact, which explains the difference of the effect of bleeding in circumstances which are similar only in appearance, and which shows, with many others of the same kind, that we probably do not arrest inflammations at once, as is very generally believed.

"As it regards *crepitation, resonance of voice, ægophony, and dulness on percussion,* their ordinary length varied like that of the preceding symptoms; that is, in the cases bled at a very early period, they were still more prominent, during one or more days after the first bleeding, than they had previously been; whereas they diminished rapidly after the first bleeding when this was employed at a later period; at least in the majority of cases.

"The *acceleration of the pulse* continued four, five, six, seven days and more after the first bleeding, in the cases bled from the first to the sixth day of the disease. Sometimes it even increased from one day to another, between two bleedings. The effect of bleeding upon the pulse seemed more decided when we practised it later than the period indicated. That is to say, in a considerable number of cases of this kind the pulse became calm, three days after the venesection; much more rarely not until four or five days. This undoubtedly depended, as was before remarked, with regard to the sputa, upon the circumstance that the bleeding was practised near the time when, in the natural course of the disease, the pulse was about to resume its natural state.

"As was the case with the quickness of the pulse, the *heats and sweats* diminished rapidly after the letting of blood, only when it was done at a certain interval after the commencement. The sweats continued longer than the heat, and lasted proportionably longer than the other symptoms in those individuals who were not bled for the first time until six days after the commencement of the disease.

"Thus, the study of the general and local symptoms, the mortality and variations in the mean duration of the pneumonitis, according to the period at which blood-letting was instituted, all establish narrow limits to the utility of this mode of treatment. Should we obtain more important results, if, as is practised in England, the first bleeding be carried to syncope?

"This practice deserves a trial, but great success cannot, I think, be anticipated; since many cases, the history of which I have drawn up, and which were fatal, were bled to a sufficient extent. Among these there was one who was bled on the day of the attack, and who nevertheless died on the sixth; the vein having

been opened five times, and the quantity of blood lost twelve or sixteen ounces each bleeding."

From 1830 to 1833, twenty-nine cases, suitable for analysis, were observed by Louis at La Pitié. Four of these were fatal. The bleedings in these cases were somewhat more copious than in those observed at La Charité, and the remaining treatment was different in some respects. In the group of patients who were bled for the first time, from the second to the fourth day inclusive, the mean duration of the disease was fifteen days and a half; in those who were not bled till after the fourth day, the mean duration was eighteen days and a quarter, leaving a difference between the cases treated at La Charité and those treated at La Pitié, in favour of the latter. Antimony, in large doses, was taken by many of the patients at La Pitié, while blistering was resorted to at La Charité, but not at La Pitié. As it is our principal purpose in this review to exhibit the results of Louis's and Jackson's investigations in regard to the effects of blood-letting, we must refer our readers to the book itself for their very interesting and important conclusions in regard to the value of other remedial means in the management of pneumonitis. So far as blood-letting is concerned, the following are the results of Louis's researches:

"1st. That blood-letting has a happy effect on the progress of pneumonitis; that it shortens its duration; that this effect, however, is much less than has been commonly believed: but that patients, bled during the four first days, recover, other things being equal, four or five days sooner than those bled at a later period.

"2nd. That pneumonitis is never arrested at once by blood-letting; at least, not on the first days of the disease. If an opposite opinion is maintained, it is because this disease has been confounded with another; or because, in some rare cases, the general symptoms rapidly diminish after the first blood-letting. But then the local symptoms, crepitation, &c., for the most part, continue to be developed not the less for this evacuation."

We shall now give the results of Dr. Jackson's analysis of cases of pneumonitis, treated at the Massachusetts General Hospital, so far as the effect of blood-letting is concerned. The period during which the cases were observed, extends from April, 1825, to May, 1835; and the number amounts to thirty-four. Of these thirty-four cases, three are considered by Dr. Jackson as somewhat exceptionable; we shall, therefore, in the following statements, exclude these cases from our calculations.

In three cases, venesection was performed on the first day of the disease. The average duration of the disease in these cases was $13\frac{1}{3}$ days. The number of bleedings was four times in each case. The average quantity of blood abstracted was $61\frac{1}{3}$ ounces to each case. In fifteen cases, bled for the first time on the first, second, or third day, the average duration was $12\frac{1}{3}$ days. The same thing is true, with a minute fractional difference only, of twenty-one cases in which blood-letting was practiced on or before the fourth day of the disease. In five cases, bled for the first time after the fourth day, the average day of convalescence was the $13\frac{1}{5}$. The average duration of the disease in these twenty-six cases was very nearly $12\frac{1}{2}$ days.

There were five cases in which blood-letting was not employed,

except that in one of them six leeches were applied. The mean duration of the disease in these cases was 14⅗ days. The results of these accurate data show that by bleeding on or before the fourth day, the disease is abridged in duration nearly one day, when compared with the cases in which this remedy was not resorted to till after that period. Compared with those who were not bled, it was shortened a little more than 2¼ days.

"But this," says Dr. Jackson, "would be representing the subject in a light sufficiently favourable to the cause of our remedy; for, in truth, the cases in which blood-letting was not employed were much less severe than the others, taking an average on each side. So that the advantage derived from blood-letting in our practice is greater than that derived from the same treatment in the hands of M. Louis. It may be suspected that this difference is to be attributed to the other treatment employed by us. When all our statements have been made this opinion will not appear very tenable. The average period for all our thirty-four patients taken together was 13 9-34, or 13.26. This is much less than for the cases reported by M. Louis. For this great difference, I think the most probable explanation is that our hospital is much smaller than that of La Pitié; that the comfort of the patients is provided for in every respect better than in the larger European hospitals; and that, especially, there is always preserved in our hospital a higher temperature than in the Paris hospitals. If there be exceptions to this remark among the hospitals in Paris, La Pitié is not one of them, unless I have been misinformed."

It is perfectly obvious, that in order to appreciate accurately the effects of blood-letting in the foregoing cases, all the circumstances which could in any way influence the disease must be taken into consideration, and the real importance of each and every one, as far as possible, determined. This has been done to a considerable extent, both by Louis and Jackson, in the work under review. The operation of blisters, for instance, is investigated by both these gentlemen. Dr. Jackson uses in the treatment of his cases calomel, colchicum, and opium. The circumstances of age, sex, and severity of disease, must also be regarded. The very important subject of temperature will be noticed in the above quotation from Dr. Jackson as one deserving great attention. In connexion with this single point we may state, that Dr. Jackson found his patients to have an early convalescence in proportion as they entered the hospital early after the commencement of their disease. Thus, of nineteen patients who entered the hospital from the first to the fourth day inclusive, the mean period of the disease was a fraction less than twelve days. Of twelve who entered from the fifth to the eighth day inclusive, the average duration was 14¾ days. One entered on the fourteenth, and one on the fifteenth day of disease, and the average period of these was twenty-five days. "No other circumstance," says Dr. Jackson, "exercised so great an influence on the period of convalescence as this; so that it would seem to be of less importance, whether our patients were bled or not, than whether they entered the hospital early or late."

It is not our intention to enter upon the other topics discussed in the book. We should not know where to begin; and certainly we should not know where to leave off, short of the last page. The entire work deserves faithful and attentive study. The various subjects of which it treats are so connected with each other, and so

mutually dependent, that the account which it has been our purpose to give of its leading and prominent topic is, necessarily, even so far only as this topic is concerned, partial and imperfect. Let every practitioner who prefers the definite and certain to the indefinite and uncertain,—clear and achromatic vision to the illusions of spectral and shadowy forms,—accurate observation to vague and declamatory conjecture, or fact to fancy, *buy it.*

We cannot let this occasion pass without putting on paper some of the reflections which have been for a long time floating about in our mind, and which have gathered around this book as a kind of nucleus, thus assuming something like form and arrangement. It seems to us a matter of sober and waking certainty, that with Louis's adoption of what is called the numerical system has commenced a new era in our science. The true light has at length shone. The safe and straight path has at last been entered upon. After a vast deal of talking about observation as the only sure guide in medical science, a few men have begun to observe. After ages of preaching the day of practice and example has begun to dawn.

The adherents of the old regime in medicine for a long time looked askance at the pretensions of French pathology. They said that Corvisart, and Laennec and Broussais were engaged in a most frivolous and unprofitable occupation in studying the minute alterations wrought in the organs and tissues by disease. They said, you do not cure your patients any better from this knowledge of morbid anatomy. It is a familiar fact, we presume, to most of our readers, that this has been a standing charge against the anatomico-pathologists, and a standing argument against the value and importance of their labours. There was some truth too in the allegation. It was said, however, in reply, and very justly, that *all* knowledge must be valuable; and none the less so, perhaps, because the precise nature and extent of its usefulness did not become immediately manifest. But we doubt whether even the pathologists themselves, or their advocates, have generally conceived truly the relation of their peculiar researches, and of their results to therapeutics. That their bearing on the treatment of disease is most important, we shall be the last to deny, but we doubt whether its nature is precisely such as it has commonly been supposed to be. In what way does an accurate knowledge of pathology and symptomology of a disease connect itself with the treatment? Does the former, of itself, lead to the latter? We apprehend that it does not. Therapeutical indications do not, in any case, flow from the nature of the disease, as it has been called. A knowledge of the symptoms of any given disease, together with its pathological changes, is necessary solely as a means of certain diagnosis. It leads to this indisputable point, but it leads no further. The treatment of the disease, after it has thus been identified, is to be governed exclusively by the decisions of experience. The diagnosis of phthisis, for instance, is now settled. Its natural history is written. Its specific characters are ascertained. In nearly all cases it is clearly and unequivocally recognisable. But how far is our knowledge of its

symptoms and its morbid anatomy to guide us in our practice? In the absence of all knowledge derived from observation, they might suggest some hints or probabilities derived from uncertain and loose analogies. They could do nothing further. Suppose it should be found by trial that phosphorus, or arsenic, or strychnine, or any other substance whatever, mitigated the severity of the disease, or prolonged the life of the patient, should we be justified in refusing assent to the practice because, according to our *à priori* reasoning, these substances are contra indicated? The symptoms and the pathological alterations of typhus fever,—thanks again to the numerical method of Louis,—are now pretty well made out. Does this knowledge settle the best mode of treatment? By no means. This is yet to be ascertained, not by *à priori* reasoning from the nature of the disease, but by rigorous observation. It may be found that some substance, which, according to our speculative notions, we should expect would aggravate the irritation of the elliptical plates, will shorten the disease, mitigate its severity, and lessen its mortality.

We say, then, that the natural history of a disease is to be studied, in order that we may recognise it, and be able to distinguish it from others, more or less resembling it. The best treatment must be learned from the trial of remedies. It cannot be deduced from the pathology of the disease. And yet practical medicine has suffered as much, perhaps, from wrong notions on this point as it has from the misnamed and misunderstood experience of physicians in regard to the utility and action of remedies. That practice has been esteemed the most philosophical and the most systematic which has based itself on pathological principles. But this procedure differs in no way from that which led some of the old hypothetical systematists to give acids in all cases, on the doctrine that all disease depended on a predominance of alkaline humours. Because our speculative notions in regard to the nature of morbid action may be less absurd than were those of former times, it does not therefore follow that there is less essential error in the system itself. If these views are correct, it is exceedingly important that they should become generally practical and operative. The widest aberrations from reason and common sense of which physicians have ever been guilty, have been made under the influence of this "false doctrine." The most disastrous consequences recorded in the whole history of our art have arisen from this cause.

We wish to say a few words in relation to the kind of experience just alluded to. And here, in the very book which we have been noticing, there is a beautiful illustration of the necessity and the efficiency of the numerical method. Dr. Jackson himself, one of the most careful, and accurate, and sagacious, and matter of fact observers, did not know the results of his own experience in the treatment of pneumonitis, till he adopted this system, and counted and analyzed his cases. "I had believed," he says, "that blood-letting after the third or fourth day in pneumonitis was not often useful; and that sometimes it was injurious; but that on the first, second, and third,

and perhaps on the fourth, it both mitigated the disease and shortened it." The latter opinion he found to be true, though it may be doubted whether to so great an extent as he had supposed; the former he had good reason to think erroneous, while his numerical analysis established the important fact, that temperature, together with the longer or shorter residence of the patient in the hospital, seemed to have more influence on the duration and severity of the disease than even the blood-letting itself. If this may be true in such cases as the one adduced, what shall be said of the great mass of experience quoted as authority by those who are our teachers through the press, and in the lecture room? In many cases this experience may approximate, more or less, to the truth; but in some it is altogether fallacious, and in all it lacks precision, positiveness, and accuracy. This remark needs neither proof nor illustration. The whole history of therapeutics is a confirmation of its truth. This false experience has done. more than any thing else towards creating distrust and scepticism in regard to the value of our art. How proverbial, even among ourselves, is the deceptive character of medical experience; and how plain is the reason why it should be so.

The study of pathology and symptomatology by the numerical method,—that is, the full study and analysis of all their phenomena, and the relations of these to each other, or, to speak more accurately, the study which has only very recently commenced of the entire natural history of disease—has enabled us to distinguish and identify a considerable number of the more common and important species. We have thus arrived at the first indispensable pre-requisite to treatment, —that of a sure diagnosis. The next thing is to ascertain the value of remedial measures by precisely the same cautious and rigorous observation which has led to accurate and positive diagnosis. This has been begun, and some of its first results are contained in the joint work of Louis and Jackson which we have been reviewing. It is only begun. The questions which these men are investigating are very far from being definitively settled. This can be done only by repeated and continued observation, conducted in the right spirit, and by men qualified for the task.

We may hope that the doubt and uncertainty in which the value of remedies has so long been involved, will thus gradually disappear; and where a new practice is introduced, we shall have a standard by which to measure it—a quick and infallible test whereby it can be tried. The natural history of the disease to be treated being first known, all the circumstances which can effect it being ascertained and appreciated, we have only to demand how far, and exactly how far, the disease has been shortened in duration, diminished in severity, or rendered less dangerous to life by the new method, when compared with other methods of practice previously in use.

Let Louis and all those, both old and young, who have imbibed his spirit, go on in the good work. We have bid them, God speed! After centuries of an existence partaking somewhat of the mixed character of a sickly and rickety infancy, and an ignorant and half crazed

manhood, our science is at last, under their auspices, and by the aid of their great predecessors in pathology, beginning to assume the form and attitude, and steady tread, of intelligent and maturing life. We have full faith that she will ultimately take her true position by the side of her sister sciences, so long and so immeasurably in her advance.   E. B.

Art. XV. *The Philosophy of Living, or the way to enjoy Life and its comforts.* ('A man's own observation, what he finds good of, and what he finds hurt of, is the best physic to preserve health.'— *Bacon.*) By Caleb Ticknor, A. M., M. D. New York, 1836. 12mo, pp. 334. (Being No. 77 of Harper's 'Family Library.')

Were we to judge from the titles of various publications which have been ushered into existence within the last few years, we might conclude that this is the very era of 'Philosophy.' We have the 'Philosophy of the Moral Feelings,' the 'Philosophy of Zoology,' the 'Philosophy of Natural History,' the 'Philosophy of Sleep,' the 'Philosophy of Travelling,' the 'Philosophy of Health,' the 'Philosophy of Manufactures,' and, doubtless, others, besides the 'philosophy' before us; nor, if such were our conclusion, should we be altogether in error. A more philosophic spirit, perhaps, pervades the world; but still an attentive examination of these productions would induce us to infer, that there is no marked reason, except fashion, why the caption should be appropriated to many of them; certainly, with at least as much propriety, might the title of Ticknor's work have been prefixed to the 'Lectures on the means of promoting and preserving Health,' by Dr. Hodgkin, or to the 'Principles of Physiology, applied to the Preservation of Health,' of Dr. Andrew Combe; to the latter of which works Dr. Ticknor makes frequent allusions in terms which it richly merits.

If the fact of the appearance of the 'Philosophy of Living,' as one of the constituents of 'Harper's Family Library,' were insufficient to show that the work is wholly popular in its cast and objects, the admission in the advertisement and preface would establish it. Such works are generally excluded from the Review department of this journal, but it may admit of very serious question, whether this ought to be the case, and whether it is not the bounden duty of the *custodes* of science and literature to notice every production from a respectable professional source, in order that the medical portion of the community may be made aware of its character, so that they may influence the *laity* to peruse or reject it, according to its deserts. Yet, more is this necessary, when improper inculcations are to be found, which cannot fail to mislead the reader.

In the case of the volume before us, this may be considered a work

of supererogation by the publishers, inasmuch as—according to their advertisement—it has already passed through the ordeal of critical examination. "In justice"—say they—"to Dr. Ticknor and ourselves, we feel bound to state, that his manuscript was submitted to the criticism of a number of literary and scientific gentlemen, to whom he was unknown even by name; and that they, as well as his friends, spoke of it in the highest terms of praise, without any communication with or knowledge of each other. They unanimously declared for its publication, and deemed it worthy of a place in the 'Family Library.'"

We do not mean to gainsay these encomiums. The production is on the whole creditable; one of its objects, as expressed by the author, that of opposing 'unwarrantable extravagance,' is praiseworthy; we can only regret, that, on some points, he appears to us to sanction 'extravagances,' as signal as any of those which he combats; at times, too, a flippancy bordering on frivolity is indulged, which, in a work of this kind—inculcating, as it does, principles of morality as well as of hygiene—ought to have been avoided. Occasionally, too, there is a looseness of connexion between the topics discussed, which interferes materially with their force and indeed their intelligibility. Of this we have an example in the concluding part of his preface, in which he gives a quotation from Bacon, which does not appear to us to have any immediate bearing on the matter preceding.

"The author has endeavoured to give to the following pages a title to express their contents, and has treated the subject, as far as he was able, in such a manner as it seemed most to deserve, without unnecessarily exciting prejudice or ill will. It is but justice to say, that this little work was planned and mostly written in the early part of '34, previous to the republication in this country of Dr. Combe's valuable work, 'The Principles of Physiology," and that its original design was similar to his. I have deemed it expedient, therefore, to alter somewhat my original plan: circumstances have delayed the publication, and the work has been made to assume its present shape. The nature of the work, embracing as it does, a multiplicity of subjects, would not allow of so protracted a discussion of their merits as in many cases would be interesting or instructive: so that it possesses at least one merit—brevity: an excellence that is not too often found at the present day.

"The first creature of God, in the works of the days, was the light of sense; the last was the light of reason; and his Sabbath work, ever since, is the illumination of his spirit. First he breathed light upon the face of the matter, or chaos; then he breathed light into the face of man; and still he breatheth and inspireth light into the face of his chosen. The poet* that beautified the sect that was otherwise inferior to the rest, saith yet excellently well, 'It is a pleasure to stand upon the shore and to see ships tossed upon the sea; a pleasure to stand in the windows of a castle, and to see a battle and the adventures thereof below: but no pleasure is comparable to the standing upon the vantage ground of truth, (a hill not to be commanded, and where the air is always clear and serene,) and to see the errors, and wanderings, and mists, and tempests in the vale below:' so always that this prospect be with pity, and not with swelling or pride. Certainly, it is heaven upon earth to have a man's mind move in charity, rest in Providence, and turn upon the poles of truth."—(Bacon.) p. vi.

Now, all this is well as a homily on truth; but what connexion has it with brevity, the subject-matter of the sentence immediately pre-

*Lucretius.

ceding? The author, again, has done us the honour to quote a description of the diet of the ancient Romans, from an article in the American Quarterly Review, which has not much more bearing on the subject before it, than the one we have cited; and other instances might be enumerated. It may be said that these are trifling blemishes; but the value of the work would have been enhanced by their absence.

On the subject of diet, generally, the remarks of Dr. Ticknor are judicious. He properly maintains, that nature has formed us in such a manner, that a few grains or even ounces of food or drink more than she requires will not materially embarrass her operations. Still, indulgence—over indulgence—in solid food, is a fruitful source of disease. They who do not regard the mucous membrane of the stomach as a part of the surface of relation, or of that which receives impressions, like the rest of the dermoid surface, and transmits them to the brain, still look upon the stomach as the 'centre of sympathies.' Can we, then, be surprised, if surfeit after surfeit should so disorder the functions of that viscus, that sympathetic irradiations proceed to every part of the economy, and ultimately induce disease in some internal organ, which may, at the time, be particularly predisposed to assume a morbid condition? How easy is it for us to comprehend, that irregularities in this respect may be the cause of most of those affections that are termed 'bilious.' In common parlance, every kind of gastric embarrassment, whether induced by undue quantity or improper quality of diet, receives this epithet. Fortunately, in the generality of cases, the uneasy feelings pass off with the digestion of the aliment that occasioned them; but if the cause be over and over again applied, irritation and its consequence, inflammation, may be induced in the lining membrane of the stomach and duodenum: this irritation is propagated along the biliary ducts to the liver: excitement supervenes in that organ, and thus the biliary system becomes really diseased. This is a case in which the mischief is induced by the stimulus of quantity, and the way to prevent it is obvious. The individual, presumed to be in health, should quit his repast as soon as he feels the first intimations of satiety. This is an indispensable prophylactic rule, and inattention to it is the cause of many of those cases of dyspepsia that occur in persons of otherwise regular habits.

The oft agitated question, whether man should subsist on vegetable or on animal food exclusively, or, in other words, which of these is the most natural to him, does not merit the space assigned to it by the author. Our business relates to man as he is. Every where he is—to a certain extent—omnivorous; unless, indeed, it be in frigid regions, where no vegetable food can be met with. Mackenzie assigns the following order to the aliments, as they succeeded each other in the first ages:—Fruits, grain, herbs, bread, milk, fish, flesh, wine, and beer; but this is ideal. Man, doubtless, lived, in the first instance, on vegetable food exclusively; but, as soon as a child was born, its diet—derived from the maternal bosom—was necessarily animal. The great difference between animal and vegetable sub-

10*

stances is the presence of azote in the former. There are animal matters, indeed, which contain no azote, but the rule is general. Milk is highly azoted, whatever may be the character of the food of the female furnishing it; the requisite azote being readily obtained from the inspired air. Milk, therefore, since the time of the first born of our first parent, has been, and is, for months generally, the sole diet of the young infant, which is, therefore, carnivorous. There can be no doubt, however, that man may be accustomed from infancy to an exclusively vegetable or an exclusively animal diet; either of which may, perhaps, be adapted for the full developement of his mental and corporeal powers; but we think there can be as little doubt, that the structure of his digestive apparatus pronounces him to be, by nature, omnivorous; whilst adequate experience demonstrates that if, after having been accustomed to feed on both animal and vegetable aliment, he be restricted to one or the other, he will fall off, and may become scorbutic. It is the want of a mixed diet that occasions scurvy in long voyages; and, accordingly, if vegetable substances, as lime-juice, be attainable, the disease is never engendered. But this kind of cachexia, or, as the Germans still call it, dyscrasy, may, as we know from experience, be produced with equal certainty by restriction to vegetable diet. An unnecessary difficulty has been raised by some writers, regarding the nutritive properties of substances that do not contain azote. Magendie succeeded in satisfying himself that dogs, removed from their regular open range of air, exercise and diet,—shut up, that is, in a confined space, and fed on sugar and substances which do not contain azote, sickened and died; and, in his view, owing to the privation of azote. We have just remarked, however, that omnivorous man, when confined to one kind of diet, animal or vegetable, is equally deteriorated. The evil is not in the privation of azote, but in the seclusion and exclusion, and especially in restricting organs of nutrition, which had been accustomed to variety, to one kind of action only. Variety of aliments is essential to plenary health, where such change or admixture has been indulged for any length of time.

As to the comparative facility of assimilation of animal and vegetable substances, there can be no doubt that the former are entitled to the preference. The flesh of an animal is more readily converted into that of man than any form of vegetable matter. The complex organization of the digestive apparatus of the herbivorous and granivorous, compared with that of the carnivorous, animal, would corroborate this deduction, were corroboration necessary. Dr. Ticknor affirms, that the flesh of animals, which live on vegetables, is far more nutritive than that of carnivorous animals; and, he adds, "the latter is indigestible and unfit for the purpose of nutrition." As respects the latter part of the assertion we agree in the main with him, but we think he is in error as to the first; or rather, that he has not sufficient proof of his position. The carnivorous animals, high up in the scale, are not eaten by man, and, consequently, we have no means of testing the matter on them.

The observations of Dr. Ticknor, in his third section—on *'Food, solid or fluid'*—exhibit some of that laxity of composition of which we have spoken.

"Much discrepance of opinion has existed among members of the medical profession, as to the digestibility of solid and fluid aliment; but the question may be considered as now settled by the experiments of Dr. Beaumont. He found, by actual inspection of the interior of the stomach, during the process of digestion, that all fluid was first converted into solid food—the watery portion passing into the upper portion of the intestines, or being absorbed before the digestive process commenced. He proved by his experiments, also, that the gastric juice is the proper solvent of the food; and that by its agency, combined with the warmth of the stomach, digestion is performed. Therefore, introducing fluid aliment into the stomach *dilutes* and *weakens* the gastric juice, and renders it unfit and unable to perform its proper office. Thus we may understand why some can take none but solid food, with very little or no drink at the same time. The gastric juice is not only weakened, but in many debilitated constitutions, it is not readily formed, so that there is but a small and inadequate supply of it; hence the great impropriety of enjoining a *slop-diet* on all who are suffering from impaired digestion." p. 63.

Although familiar with the experiments of Dr. Beaumont, in the institution of some of which we participated, this is the first time we have heard of his having settled the question referred to. Long before his experiments, it was maintained in the works on physiology, that, in the case of all animal and vegetable infusions, the watery portions are absorbed by the vessels of the stomach and small intestines, and that the solid matter undergoes digestion; but this was not settled by any experiments of Dr. Beaumont, nor could it be by actual inspection of the interior of the stomach, in the case that formed the subject of his experiments, inasmuch as the aperture did not admit of the pyloric portion of the stomach being seen. There is no doubt whatever, that too much fluid does dilute and weaken the gastric secretions, and that there is a certain *'digestive texture,'* which is the most favourable for digestion; but, after all, as the author has correctly concluded, although it is not so easy to see how he has arrived at the conclusion from his premises—

"Every individual must be his own judge in the case, and his own feelings are to be the test. When he feels the least incommoded, when he feels the least sense of weight in the region of the stomach; in one word, when he feels the most comfortable after eating a meal of solid or liquid food, he may conclude with certainty that, whichever it may be, it is the most proper for him."

Dr. Ticknor seems to be a great advocate for individual decision as to appropriate diet. The lower animals, he says, have no other guide than their taste or instinct to direct them in the choice of their food, and yet they seldom make a fatal mistake. "Man, by being placed at the head of the animal creation, is *not deprived of this faculty;* he has it in common with the others—and shall it be said that he shall not listen to the voice of nature within him?" p. 66.

Yet this voice of nature, without knowledge derived from experience, would be but a fallacious guide. The flavour of the deadliest of all poisons, the hydrocyanic acid, is agreeable to the palate; and all made dishes,—prepared, that is, with a large quantity of nutritive matter in a small compass, and, therefore, difficult of digestion, are form-

ed expressly to suit the taste, not for facility of conversion in the stomach. In this it is, that the cookery of France so far excels that of other countries, in despite of the assertion of our author, which is negatived by the experience of every traveller, that the continental cookery is so bad as to cause the English travellers to be *temperate* in *eating.* (p. 29.) In a subsequent section, he states, that the law of nature is the only rule applicable to the regulation of the quantity of food,—that is, we presume, as regards simple food,—and is disposed to leave every one to the dictates of his stomach and taste, in a reasonable choice of his diet, as to quality, and to the laws and wants of his system in relation to quantity; yet, he agrees, that "dyspepsy is oftener the effect of over-eating and over-drinking than of any other cause," an admission which detracts somewhat from the force of his previous observations.

The following needless comments on a vulgar error afford an instance, in which we think the author has 'fallen from his high estate," in order to attempt the ludicrous, which is clearly not his forte.

"But it is said that man partakes of the nature of the animals which he eats. What say you to this, ye beef eaters of Old England, or ye pork eaters of New England? are ye any more disposed to be beastly or swinish? and ye my fair countrywomen, who are unsurpassed throughout the universe for intellectual worth and refinement of feeling, do you acknowledge yourselves excelled by those who live on *potatoes* or *sour krout?* Or ye who live on fish, are you any the more *scaly* than he who lives on bran bread? Are you more fond of cold water than he? &c." p. 42.

As to the time of eating, Dr. Ticknor properly considers the observance of regularity to be more important than of particular hours. Three or four centuries ago, our English ancestors, of the better class, regulated their meals in a manner singularly contrasting with the customs of their descendants. In the fifteenth century, they had four meals a day—breakfast, dinner, supper and liveries—the last being a kind of collation in the bed chamber, immediately before retiring to rest, analogous to the supper of the moderns, where such a meal is eaten. In the Southern States of this Union, the true supper is so rarely taken, that the evening repast of tea usually bears that name. Our ancestors breakfasted, in those days, at seven, dined at ten in the forenoon, supped at four, had their liveries between eight and nine, and soon after went to bed. This was the custom with the great; but, what is remarkable, the trades-people and mechanics observed later hours than the higher classes. They breakfasted at eight in the morning, dined at noon, and supped at six in the evening.

What a difference between the manners of past and present periods! At the present day, in Great Britain, the *dejeuner* is often *celebrated* at two in the afternoon; and, as we have unfortunately witnessed and felt, the company, at a fashionable dinner party, have not sate down to dinner until nine in the evening! But 'custom,' saith the great dramatist, 'hath made it a property of easiness.'

In the author's remarks on milk, as an article of dietetics, which are on the whole good, we find it stated, that in infants, and indeed in the young of all mammiferous animals, there is, in health, a very active condition of the digestive organs; the contents of the bowels

are frequently expelled, and always in a semifluid state. This active state of the alimentary canal, Dr. Ticknor says, "is not owing to the quality of food, whose tendency is to produce a contrary effect; (?) but rather to an abundant secretion of bile, and, perhaps, to other causes, which do not exist in adult life."

We have no doubt of the agency of these other causes. Certainly, we have no evidence of the greater secretion of bile; the greenness of the evacuations is none; because we know that, if acid be added to healthy bile, out of the body, it occasions such greenness. The appearance is owing to that predominance of acid in the primæ viæ, which prevails in infancy. Moreover, there is the same activity in the urinary organs, and Dr. Ticknor would scarcely invoke the agency of the bile to explain that.

On the subject of drinks, the author has evidently had a task of some difficulty. Convinced, he says, that alcoholic potations are never necessary for a person in health,—ardently attached to the temperance cause, yet desirous of eschewing ultraism,—his conclusions are not very perspicuously stated. Natural thirst, he observes, and who is there that will not agree with him? is never, in health or disease, quenched by ardent spirit. The brains of hard drinkers, he says, are found, after death, 'harder *and of more firm consistency.*' *Ergo*, he concludes, it is fair to infer, that *moderate drinkers* are affected in proportion as they are exposed to the same cause. *Quod est demonstrandum!* Dr. Ticknor's repugnance extends to the use of wine, though not to the same extent; but the family of malt liquors, and indeed of brewers, meets with signal condemnation. We will allow him to record his abhorrence in his own language.

"Alcohol richly merits a place on the shelf of the apothecary, by the side of our most potent remedies; for any thing capable of doing so much mischief, can, if rightly used, do some good. I speak now of ardent spirit, alcohol, under the varied forms of distilled liquors and wines, free from the admixture or adulteration of any noxious or unwholesome drug. With the compounds denominated porter, ale, and beer, the evils are magnified; they not only contain the noxious ingredients of their ordinary composition, but the vile drugs with which they are adulterated. There are, doubtless, some honest brewers; but, to a certainty, there are a few consummate rogues. It is known, beyond a possibility of doubt, that the most poisonous drugs with which we are acquainted are used, more or less, in the adulteration of malt liquors: but the extent to which this murderous system is carried, is best known to those whose reckless love of money prompts them to the practice of this diabolical knavery. But a pure malt liquor, the old-fashioned ale, made of malt, hops, and water, is claimed to be a wholesome and nutritious drink: and ''tis passing strange' that this claim has been almost universally acknowledged—and that too even by medical men. A most important item in making up the account of the wholesomeness of this beverage, has been unaccountably overlooked; it has been thought that if nothing worse than hops entered into its composition, it could not, therefore, be hurtful to the healthy constitution. But how justifiable is this conclusion from the premises, a moment's examination will enable us to decide. Dr. Chapman, in his Therapeutics, says, 'that it,' the hop, 'is possessed of such medicinal qualities as to entitle it to a place in the Materia Medica. It is, perhaps, as a *narcotic* that it has the highest claims. The fact of its having this property was long known, so generally so, indeed, that a pillow of it came to be a popular expedient to quiet nervous irritation and procure sleep. As an anodyne it may be substituted for opium, where the latter, from idiosyncrasy or other causes, does not suit the case.'

" 'They are also said to possess the power of procuring sleep in the delirium of fever, and in mania, when used as a pillow; and owing to this effect having been confirmed in the case of the late king, George III., their efficacy as a general narcotic, when introduced into the stomach, has been investigated. Dr. Maton observed, that besides allaying pain and producing sleep, the preparation of hops reduces the frequency of the pulse, and increases its firmness in a very direct manner. One drachm of the tincture and four grains of the extract, given once in six hours, reduced the pulsations, in twenty-four hours, from ninety-six to sixty.'* The dose of the powdered hop is from three to twenty grains; and the other preparations are given in a dose of proportionate strength. The testimony of many other writers, and the experience of multitudes of practitioners confirm the above statements.† The usual quantity of hops, according to the formula of brewers, is about one ounce avoirdupois in a gallon of ale; so that he who drinks his quart of beer a day, swallows each day the active properties of a quarter of an ounce of hops. The Eclectic Dispensatory recommends that the infusion of hops, to be administered with a view to obtain its sedative, narcotic effect, be made in the proportion of a half an ounce of hops to one pint of boiling water; and of this, *one ounce and a half* to be taken *two or three times a day.* Thus, then, a single glass of *pure ale* contains twice the quantity of hops that is prescribed as a sufficient dose when used as a medicine !!! Little wonder there need be at the bloated carcasses of beer-drinkers; but we may well be astonished at the infatuation of man, in daily pouring down such quantities of this most 'villanous compound.' Can any man, dare any man, put the question to his conscience, whether or not, with these facts staring him in the face, he can any longer indulge in the habit of beer-drinking? But if his conscience impose no obstacle, reason, speaking by facts like these, must lead him to consider well before he tastes. Some of the articles that are, or have been, used in the manufacture of beer, besides hops, are *Indian cockle, nux vomica, bitter bean, grains of paradise, Indian bark, coriander seed, Leghorn juice, red pepper, orange powder, colouring, hartshorn shavings, Spanish juice, ginger,* 'cum multis aliis.' If the imagination of man ever conceived a more horrid mixture, Shakspeare put it in his witches' caldron; and it is not improbable that the brewers' tubs suggested the idea of his 'hell-broth.' Let him describe his own infernal mixture, and if anything on earth can equal it, malt liquor is the thing.

> 'Root of hemlock, digged i' the dark,
> Liver of blasphemous Jew,
> Gall of goat, and slips of yew
> Slivered in the moon's eclipse,
> Nose of Turk, and Tartar's lips,
> Finger of birth-strangled babe—
> Make the gruel thick and slab;
> For a charm of powerful trouble,
> Like a hell-broth, boil and bubble,
> Double, double, toil and trouble,
> Fire burn, and caldron bubble.'
> 'Cool it with a baboon's blood,
> Then the charm is fine and good.' p. 92.

What would the eccentric Kitchener have said to this abuse of the 'vinum Britannicum,' the 'liquid bread,' which he thought preferable to any other beverage during dinner or supper? and how unfortunately must that people be situated, who are essentially 'beer drinking'! The whole paragraph is a specimen of that 'ultraism,' against which the author professes to 'run a muck,' and the same may be said of his

---

*Eclectic Dispensatory.
†Dr. Ives, of this city, has done more than any other man to make known to the profession the valuable medicinal properties of the hop.

remarks—medical and moral—on the use of tobacco.   Weighty objections can, doubtless, be urged against its abuse.   We know it to be a virulent poison when taken in sufficient dose;·but we do not give so much weight to the elucidation offered by the author as he himself does.   "If tobacco," he observes, "is so poisonous as to destroy animal life instantaneously, when applied to the tongue," (Qu. In what form?) "it needs no other argument to prove its hurtful tendency to health, when habitually and daily used."   This appears to us to be a 'non sequitur.'   Have we not constant opportunities for witnessing the facility with which the system accommodates itself to influences originally malign? and are we justified in concluding without any sensible evidences, that an article, which, in large doses, is deleterious, must necessarily be prejudicial in a smaller dose? If this were true, we should run the risk of permanent injury from flavouring our custards, day after day, with the peach leaf, inasmuch as we know that the hydrocyanic acid, which communicates to it its flavour, in an adequate dose, is a rapidly fatal poison.   As to the author's comments on the vulgarities associated with chewing, smoking, &c., we approve of their correctness, rather than of their taste. A cigar smoker he compares to a "walking volcano," and he thinks the definition of an angler, by "a British classic writer," might be transferred to the other worthy:—"a stick and a string, with a worm at one end, and a fool at the other"!

Dr. Ticknor's fifth chapter is on dress.   We have nothing to object to the general rules he lays down on this subject.   He commences his observations with the physiology of respiration, the pertinence of which we do not exactly see.   Nor are we prepared to accord with him, or with Bichat, who is the author of the view,—that the blood, as it returns in the veins to the heart, is altogether unfit for nutrition; and "acts as a most deadly poison, if allowed to enter the arteries without undergoing the change."   This, we say, was the view of Bichat; but the experiments of Williams and Kay have shown, that it is by no means as deleterious as was believed, and that in asphyxia the organs die in consequence of the deficiency of arterial blood, rather than from the presence of black blood.   The phenomena, too, of Asiatic cholera are opposed to the notions of Bichat.

The animadversions of the author on the subject of tight-lacing— that baneful practice, which has laid the foundation for so many fatal maladies in the fairest part of creation—are just and proper, and we hope will not be without their influence in correcting the evil.   How many thanks would be due from the philanthropist, would some of those, who hold the necessary elevation in the fashionable world, set an example on this head, and introduce the custom of wearing an article of dress which could exert no injurious compression.   Fashion alone regulates the matter; and were the present mode to change, its successor would soon exert the same imperious sway, whilst the evils that are now so much deplored might be abolished.

Another physiological opinion espoused by the author admits of equal dispute,—that the perspiration is composed of useless and nox-

ious materials, which, for the well-being of the system, must be sepa-
rated from the blood, and discharged from some of the outlets of the
body; and that checked or suppressed perspiration is a prolific source
of disease; "as must be clearly manifest when we consider that the
daily quantity of *effete and poisonous fluid* is retained in the circula-
tion, and distributed to every part of the body, to all the delicate vital
organs." But it may be asked, in the first place, can the two pounds
—and why the quantity is estimated at two pounds, we know not—be
retained in the system. It appears to us certainly not. There is an-
other function of depuration, to which the author has alluded—that
of the kidneys; and between the two there appears to be a kind of
compensation. In summer, when the cutaneous transpiration is co-
pious, the urinary depuration is less; whilst in winter, the reverse
holds good. Without, however, going at length into this matter, we
may adduce, what appears to us to afford a conclusive argument
against Dr. Ticknor's views,—that more danger results from exposing
a *part* of the body to the application of cold and moisture, than the
whole. This is proverbial every where, and the Spaniards have a
saying, which embodies the universal belief into a popular form—

"If cold wind reach you through a hole,
Go make your will, and mind your soul."

Again, it is a matter of common observation, that we can pass from
a heated room, when all our organic actions are in a state of excite-
ment, into the cold air in winter with impunity; and a similar truth
is exhibited by the operation of the Russian vapour bath, in which
the bather, after having been steamed at a temperature of 130 de-
grees and upwards, throws himself into cold water—sometimes into
snow—without mischief. Yet, if obstructed transpiration were as
common a source of disease as the author before us believes—and as
many hundreds believe with him—disease ought rather to result
from these general checks, than from the partial checks to which re-
ference has been made. There are few individuals who could expose
themselves to a draught of air through a key hole impinging on the
naked head, without suffering; but is it philosophical to refer the suf-
fering to the retention of the matter of perspiration over so small a
space of the cutaneous surface—and ought it not rather to be ascribed
to the irregularity of capillary action induced in the part; such irre-
gularity extending to the rest of the capillary system of vessels, be-
tween all parts of which we know that an extensive sympathy exists?

The chapter on amusements, including the theatre and dancing, we
pass by without comment, as being more moral than medical. The
former is another of the topics on which the author's views must be
esteemed somewhat ultra. Dancing we hold to be a valuable gym-
nastic exercise, especially in cities, where the due amount of exercise
is rarely taken. Both these amusements, however, require that due
care should be taken in other respects, or the health may suffer; but
to the simple exercise of dancing, when appropriately used, we can
see no objection.

If our views on the influence of mental exertion on the body do

not agree in other points with those of the author, they do as con-
cerns the error of the "generally prevalent notion," (we doubt whether
it is generally prevalent,) "that a superior intellect, or great genius,
is incompatible with a robust and vigorous body." Yet this opinion
is maintained by one whom Dr. Ticknor esteems "a medical writer
second to no one of this or any age."—"De gustibus, &c.," as the
author himself has said on another disputed topic. The position, he
affirms, and we accord with him, "is founded in error and sustained
by ignorance," and "it originated, probably, from the fact, that there
are and have been many great men, of remarkably feeble constitu-
tion, and delicate health; but if their health had been good, there is
no reason to believe that their powers of mind would not have been
still greater." p. 214.

Some good remarks are made as to the change of climate requisite
for the valetudinarian during the winter months—and especially for
such as are of the tubercular diathesis. Dr. Ticknor accords with
us, that no part of the United States is better adapted to become the
residence of invalids requiring a warm climate than Florida; but he
is extravagant when he asserts, that it is as much superior to the
south of Europe as the latter is to Nova Zembla or Lapland. "Many,"
he says, "who have emigrated to the interior of Florida, in the most
hopeless condition, apparently in the last stage of pulmonary con-
sumption, have completely recovered, and for many years enjoyed
uninterrupted health." p. 257. He thinks Texas, in point of salu-
brity and adaptation of climate, equal to, if it do not surpass, any
other country of the globe, as a residence for consumptive invalids.
His picture, however, of the absence of malaria is greatly over-
charged. The summer and autumnal fevers are malignant on the
gulf of Mexico; but these occur, it is true, at seasons during which
the atmosphere of the United States is sufficiently mild for the con-
sumptive. Dr. Ticknor must have been misled by partial testimony,
when he ascribes to the country "an equable atmosphere, sufficiently
warm and moist in the winter months, and *not loaded with moisture
and poisonous effluvia* in the summer." Nothing in the south of Eu-
rope," he adds, "will compare with this." p. 258.

The last chapters of the book are on air and locality, temperament,
age, sex, and marriage. Why is it, by the way, that the author esti-
mates the proportion of azote to oxygen in the air of the atmosphere,
as 76 to 23? The prevalent computation amongst chemists is four
to one: some, however, adhere to the old proportions of 79 to 21:
but none that we recollect have given the same ratio as Dr. Ticknor.
Again, how is it that the author makes the melancholic and the bilious
temperaments synonymous,—in the teeth of universal authority, which
holds the choleric and the bilious, the melancholic and the atrabi-
lious to be of like signification.

Such are some of the topics discussed in the "Philosophy of Liv-
ing." As the work is destined for the public rather than for the pro-
fession, we have touched mainly on those points that are of a profes-

sional character, and especially on such as do not square with our own ideas. To understand the manner in which the author has treated his various topics in connexion and detail, it will be necessary to refer to the work itself, which, as we have said before, is creditable, and calculated to be of advantage; although by no means to the same extent, as if he had eschewed ultraism on all points, as well as on the few which he has made the subjects of his animadversions. R. D.

ART. XVI. *Mémoires de l'Academie Royale de Médecine.* Tom. 4. Paris, 1835.

The great importance of this collection of papers, written by the members of one of the most learned bodies in Europe, seems to demand more deliberate notice from the reviewer than is usually bestowed upon periodical publications. But the nature of the investigations recorded by the Academy, which cover the entire field of medical science, renders it extremely difficult to execute the task. Several individual articles in the volumes before us would be worthy of a distinct review—and we propose to confine ourselves, in the present article, to the surgical papers only—leaving the historical, medical, chemical, and anatomical essays for a future occasion.

The first memoir on the list is that of Dr. G. Mirault, upon the ligature of the tongue, and of that of the lingual artery in particular. It contains the details of a case of cancer, seated deeply in the centre of the tongue, and sufficiently advanced to present extensive carcinomatous ulceration, and a fungus which filled the mouth when closed, and was pressed down and flattened by the palatine arch. An attempt was made to cut off the principal supply of blood to the tongue, and, consequently, to the tumour, by tying both the lingual arteries near the hyoid bone.

The first operation was performed on the 17th of May, 1833. The design of the operation was to secure the lingual artery on the left side. It failed, as the artery could not be found, after the observance of all the rules laid down for the discovery of the vessel, and the employment of the lights of personal experience.

The surgeon then resolved to tie the left side of the tongue by means of a ligature including the whole of its substance, and to secure the right lingual artery by means of another ligature simply including the vessel.

"In consequence, on the next day, (the 18th,) I operated in the following manner. The patient, being seated upon a chair, the head being turned over and applied to the chest by an assistant, the chin being turned to the left, I assured myself of the position of the hyoid bone, and I made an incision upon the right side, which, tending from the great horn of this bone, was directed forward and upward, and was terminated at the anterior margin of the sterno-cleido-mastoideus muscle, passing at the distance of about six lines from the angle of the lower jaw. The skin, the cellulo-adipose membrane, and the platisma-myodeus muscle, were successively divided. The external jugular vein, which appeared at the

external angle of the wound, was twice tied and cut between the ligatures. I next incised the external lamen of the cervical fascia which covers the sub-maxillary gland. This gland itself was detached from its cellular adhesion to the aponeurosis, and was turned up upon the body of the lower jaw, where it was retained inverted by an assistant. Having arrived at the deep seated lamen of the fascia, I divided it in such a manner as not to injure the parts lying beneath, and brought into view the digastric and stilo-hyoid muscles, the lingual, pharyngeal, and external maxillary veins; each of which" (*vessels*) "was included in two ligatures, and divided between them. The hypoglossal nerve occupied the inferior part of the wound; I searched for the lingual artery, and found it a few lines above the nerve, upon a plane somewhat more deeply seated. One simple ligature was passed under the vessel by the aid of a curved needle with a handle, and I tied it, after having ascertained that the pulsation on the track of the ranine ceased, when the artery was compressed between the extremities of a forceps." p. 39.

The two wounds were stuffed with lint, *as usual,* and suppuration was established, and became so abundant as to exhaust the patient. While using a nutritious diet the fungus gradually became less considerable, the patient dragged out portions with her finger, and it finally disappeared, leaving an anfractuous ulcer eight lines in depth, with hard scirrhous edges. Toward the sixth of June, there occurred several hæmorrhages from the tongue, which were checked by agaric and pressure. On that day the surgeon proceeded to the performance of a third operation, which is described as follows:—

"I made an incision on the median line of the neck, from a point a finger's breadth below the chin to the hyoid bone. I divided the skin, the adipose tissue, the raphé of the mylo-hyoid muscles, and penetrated into the cellular interval between the genio-hyoid muscles. The tongue was next seized by its two faces with a forceps, of which the grasping extremities were guarded by agaric, and it was drawn out from the mouth. This forceps having been entrusted to an assistant, I plunged a large curved needle, armed with a ligature, through the wound. I made it traverse the base of the tongue in such a manner, as to penetrate into the mouth, and I drew it out with my index finger, which I had introduced to the bottom of this cavity to meet it. I caused the assistant again to seize the tongue, carrying it towards the right commissure of the lips, so as to separate it from the right side of the jaw. Then marking the point by which the needle ought to penetrate, with my index finger, in the maxillo-lingual groove, immediately before the anterior lateral half arch of the soft palate, I buried it in the inferior parietes of the mouth, directing its point, at first, from above downward, and then downward and inward, to approximate it to the mesial plane of the body, and I caused it to make its exit by the wound of the neck near the spot by which it had been plunged in the early part of the operation. The two ends placed beneath the chin were tied in a slip-knot and drawn sufficiently tight." p. 42.

The pain of this operation, at first very severe, began to decline in half an hour. In the course of the day the ligature required tightening, in consequence of three hæmorrhages from the ulcer. The immediate effects were slight swelling and deepened colour of the tongue, some puffiness of the face and fever, pains of the left side of the head, and some slight paroxysms of delirium on the fifth day. The section by ligature was completed in nine days, the knot having been tightened twice during that time. *Adhesion by the first intention*—"Adhesion immediate"—was prevented during the section, by the occasional introduction of a finger into the fissure.

After this operation, the scirrhous tumour became diminished in size, the edges of the ulcer soft, and the peculiar fetor disappeared.

Dr. Mirault next proposed the excision of the diseased portion of the tongue, now deprived of its larger vascular connexions; but dreading the difficulty of making a transverse incision near the base of the tongue, he resolved to perform a double operation for the purpose— first; by ligature, to divide the remaining half of the organ on the level of the previous ligature; and secondly; by the knife, to detach the front of the tongue from the floor of the mouth.

In pursuance of this intention, on the 16th of June, the surgeon performed his fourth operation, which was easily executed, as the track of the old ligature through the centre of the tongue was detected by a canula, and no new puncture in this direction was necessary. The section was completed with much less loss of time, and with much less pain, than were the result of the first ligature, and the only consequent accident was an erysipelas of the face, which terminated by resolution.

This time, however, the introduction of the finger, to prevent immediate union of the incision, was neglected by the patient, and, to the mortification of the surgeon, when the ligature fell, the right half of the tongue was found completely reunited! This accident was productive of the most happy result, for the fifth operation, for the removal of the diseased portion was rendered unnecessary by the healing of the ulcer and the disappearance of the tumour! The patient recovered entirely.

The various points of high interest in this singular case are so obvious that they scarcely require to be pointed out. It is the first instance of the application of a ligature to the lingual artery on the living subject. The mode of applying ligatures to the tongue through a median incision on the throat is of great value, as it enables us to enclose, without danger, the whole of that organ. The rapidity of the action of the ligature; the pain, so much less considerable than might have been anticipated; the facility of reunion, (though we are at a loss to comprehend how the "réunion immédiate" can follow a solution of continuity formed by an ulcerative process,) and the definitive action of the suppression of a part only of the vascular supply of a cancer, are all matters of high interest. When we add that there is appended a tabular view of the aberrations of the origin of the lingual artery in a number of subjects, and that the author makes many important observations on the surgical anatomy of the neck, and the relations of this artery, it will be perceived that the paper is one of unusual value.

Passing over a laboured monograph of the anatomy of the larynx and trachea, by E. A. Lauth, of Strasbourgh, illustrated by a plate, we meet with the paper of M. Salmade, on rachitis and the treatment of deformities. This surgeon considers rachitis and scrofula as closely connected, if not identical. The disease is rare among us, and it becomes us to be modest in speaking of it, but it appears very evident that there is much confusion in the paper. We cannot conceive that the same disease should sometimes enlarge and sometimes diminish the bones or their cavities; that it should always produce curvatures of

those organs, yet that it should sometimes render them brittle and at others soft and flexible. We do not see how it can give rise to an elongation of one side of the body of a vertebra, while it produces intersticial absorption of the other side, and we must positively protest against the assumption that the double lateral curvatures of the spine are always, or even generally, connected with either rachitis or scrofula.

The strictures of the author upon the treatment and results of cases at othomorphic institutions may be perfectly correct in regard to some such establishments, for there are few wider fields for empiricism than the management of deformities; but the directions with regard to exercise and position, given by the author himself, though too general to be applicable to individual cases, are such precisely as we supposed to be carried out at a well-governed hospital of this character.

The next article contains a case of imperforation of the anus and penis, with symptoms after operation of a narrow connexion between the rectum and urethra, by M. J. N. Roux, of Brignoles. The orifice of the urethra was found covered by a thin membrane, and tended to terminate behind the gland. The membrane was punctured, and the passage was established.

No signs of a return could be discovered, for there was no apparent raphé in the perineum, and the skin over the site of the anus was smooth and uniform. The sphincter muscles were present, and served as a guide to the operator. He commenced his incision with the scalpel; laid bare the external sphincters, and finding them coalescent at the median line, he divided them to a sufficient extent, to allow them to assume their elliptical form. After pressing these muscles, and the levatores, till he reached the depth of an inch, he substituted a bistoury for the scalpel, and proceeded to dissect upward, methodically, till he encountered the cul-de-sac of the rectum. The usual difficulty occurred after the operation, from the disposition of the orifice to contract; and when obstruction from this cause took place, the child several times discharged portions of fecal matter with its urine. By the use of bougies, and other measures, the anus was finally established, even to the folds of the external skin.

The principal object of the remarks, appended to this case, appears to be, the inculcation of the propriety of methodical divisions of the muscles, when present, instead of the blind digging sometimes practised.

The paper is accompanied by a view of the pelvis in section, and the course of the operation.

Next follows a case of luxation of the humerus downward and outward on to the back of the scapula beneath the spine; reduced after forty-five days; by M. Lepelletier de la Sarthe. This very rare accident has been considered problematical by many surgeons.

The author takes some notice of the instances which have been placed on record, and of the imperfect accounts given of the diagnostic symptoms by Dessault, A. Cooper, Roche, and Sanson, &c.

11*

By Boyer, the accident has been represented as dependant upon a malformation of the glenoid cavity; but such appears not to have been the case with M. Lepelletier's patient, nor with that mentioned by M. Sedillot, (*Mémoire sur un luxation en ariere,*) whose description of the diagnostic marks, is considered the best extant, by our author.

In order to place our readers in possession of the appearances presented in M. Lepelletier's patient, we will quote his own description.

"An attentive examination enabled me to recognise the following symptoms. 1st. Decided inclination of the head to the right. 2nd. Slight deformity of the shoulder of the same side; visible at a glance. 3d. An increase of the transverse dimensions of the shoulder. 4th. Very slight flattening of the deltoid and prominence of the acromion. 5th. Obvious obliquity of the humerus from above downward, and from before forward; dragging of the whole member, in a state of semi-flexion in this direction. 6th. Approximation of the elbow toward the trunk in the obliquity; impossibility of this approximation, when the member was placed in a direction parallel to the torse. 7th. Lengthening of the member to the extent of nine lines, as measured from the elbow to the acromion. 8th. A round hard tumour in the direction of the humerus, near the superior external portion of the subspinous fossa. 9th. Absence of a similar tumour in the axillary cavity. 10th. A flattening of the shoulder in front, and, towards the middle of this depression, a prominence under the scapulary extremity of the cavicle, perceptible to the eye; and more especially very cognisable by the touch, and which we attributed to the presence of the coracoid apophysis rendered thus salient in consequence of the absence of the head of the humerus which masks it when in the normal state; an important arrangement, to which we call the attention of all practitioners. 11th. Very firm adhesions of the scapula to the humerus, the motions of which it followed, according to its changes of position. 12th. Freedom of the motions of the arm forward, difficulty and painfulness of the motions backward, impossibility of carrying the hand to the head."—p. 194.

In the reduction, it became necessary to break up the adhesions between the scapula and the head of the humerus, which gave way with an audible noise, and the reduction was then effected without difficulty. The patient, in a paroxysm of delight at the unexpected relief, made an unfortunate flourish with his arm, and reproduced the luxation; but it was again reduced, almost without effort, by the surgeon alone; and the arm was then prudently confined to the side. Although in M. Sedillot's case, a year and four days had elapsed after the accident, before reduction was accomplished, and yet the glenoid cavity remained capable of retaining the head of the humerus, some fears of a partial obliteration of the cavity were entertained in the present instance, from the facility with which the displacement recurred. The changes which take place in the bones and articular cartilages, from the mere suppression of their natural functions, are so tardy, that a material alteration in forty-five days, would have been a remarkable circumstance, and the complete perfect recovery of this patient, in fifty-four days, proved the anxiety felt on this account to be groundless.

Next follows a note on some novel means for re-establishing the regularity of the thorax in cases of lateral deviation of the spine, by M. Ravaz. The principal object of the paper is to point out the manner in which the rotatory movement of the vertebræ in lateral curvature, and the displacement of the ribs, which is a cause or consequence of that rotation, may be removed by the direct pressure of pads, &c. acting on the ribs themselves, and through them upon the spine.

These measures are designed to be auxillary to the extension usually employed, either in the horizontal, inclined, or erect position.   Great care is taken in arranging the accessory machines, not to prevent the free motions of the weakened muscles, so necessary to the permanence of any mechanical results in the treatment of curved spine, and contrivances are appended to one of the horizontal machines, by which the patient is at liberty to act with the weakened muscles in the recumbent posture, the apparatus itself following all his motions.

The chief value of the paper before us, consists in the force with which the author defends the necessity of acting on the centre of the arches of curvature, as well as upon their extremities, and in the principle upon which he employs oblique pressure, instead of lateral pressure, in correcting the contortions of the thorax, using the ribs themselves as levers, and causing them to impress upon the transverse processes and bodies of the vertebræ the reverse rotatory movement to that which is caused necessarily by the lateral curvatures of the dorsal spine.

Next in order follow two papers on lithotrity, one containing an account of the operations of M. Ségarlas, with his peculiar instrument, (*Brise-pierre a pression et a percussion*,) read Feb. 4, 1834; the other entitled "Some Remarks on Lythotrity, by Dr. Civiale.   Both these publications appeared before the recent much debated report of M. Velpeau, and their principal contents have already been placed before the public in various ways.   The facts are mainly included in those which came under discussion, on the occasion just mentioned, and having been indirectly canvassed in a previous number of this Journal, we will pass them by for the present.   Knowledge now reaches us in shreds and patches, with such amazing rapidity, that it would be well for the members of the French Academy and the lecturers of the London Hospital, to place their memoirs and lectures in type before they are read or spoken, if they wish to be the original chroniclers of their own ideas.

After two toxicological essays and a laboured article on tubercles, we again find ourselves in the midst of a group of surgical papers. The first of these is a case of fracture of several cervical vertebræ, by Mr. Lauth of Strasbourgh.   The patient fell from a window of a second story in July, 1830, recovered with deformity and stiffness of the cervical column without paralysis, and died in December, 1833, of disease of the heart and pericardium.

Examination displayed the remains of an old fracture and its consequences.   There was a strong re-entering angular derangement of the spine at the site of the fifth vertebra of the neck.   The body of this bone had evidently been crushed, and its anterior edge had been totally absorbed, so as to allow the edges of the bodies of the fourth and sixth vertebræ to come in contact.   The whole atlas was anchylosed with the occiput, and the bodies of the third and fourth were in the same condition.   There was sufficient reason to believe that both these last named portions of bone had been partially crushed by the accident, but it is deemed unnecessary to enter into particulars.   The

muscles of the back of the column were in a state of atrophy so complete as scarcely to be cognisable. The case is chiefly interesting as a proof of the great extent to which the spinal column may be injured by causes which alter its form but slowly without involving life; and, as a caution against pertinacious endeavours to perfect the diagnosis in accidents of this nature. What would have been the fate of the patient, if some officious operator had in this case attempted to produce crepitus!

We hardly know what to say to the paper of M. Silvy, of Grenoble—it describes a "complete obturation of the pupil of the left eye," produced by the remains of the capsule of the lens, after what is described as an awkward and violent operation for extraction through an insufficient orifice, by an itinerant and boastful pretender to skill in the treatment of cataract. The operation was followed by inflammation, and the vision, which was enjoyed for the moment, gave place to total blindness, for the other eye had been lost long before. This was produced, as it would appear, by fragments of the capsule, in a state of opacity, blocking up the pupil, without adhering to the iris. These fragments were afterwards reclined or depressed by M. Silvy, and the vision restored permanently. All this is very natural, and, we should suppose, proper; but the author goes into an argument as to the propriety of his operation, and defends it against certain supposed objections, which may be founded on the evidence of most of the great oculists, in favour of the solvent powers of the aqueous humour. M. S. grants the probability of the solution of portions of the capsule, when they preserve their transparency! but doubts it when they are thickened and opaque. We cannot understand how any membrane, still retaining its vitality, could be absorbed at all by this fluid, nor can we comprehend how, after having lost its vitality so as to become soluble, it can still retain its transparency while floating in an aqueous fluid. If these difficulties really exist, it follows, in reverse of the author's idea, that the membrane, like the lens itself, must lose its transparency even by the very process of solution.

It is now altogether unnecessary to quote Richter, Maître Jean, Scarpa, &c., in proof of the solvent powers of the aqueous humour. What is well known to dissolve steel, and the solid portions of a lens, is not likely to be embarrassed by the density, or the opacity of a piece of capsule. But the connexions of the obstructing portions, their size, and the length of time for which they rest in the pupil, are circumstances of the greatest importance, in deciding on the propriety of their removal by a posterior operation. The first of these circumstances may cause the preservation of the vitality of the pieces of capsule, and their adhesion to the iris; (which latter accident, however, would not in every instance interfere with their depression, as M. S. supposes:) the second, may determine, particularly when in co-operation with the third, an inflammation of the iris from distension of the pupil: while the third, singly, might render the operation proper, by delaying too long the exercise of the proper functions of the organ. We have seen months elapse, before any very perceptible change

took place in a lens, divided or torn repeatedly with a Scarpa's needle, the pieces for the most part lying nearly in situ; yet after months had elapsed, we have seen that very lens absorbed with sufficient rapidity to promise a strong prospect of the perfect recovery of vision. In this case, a second operation was performed, and the eye was lost by inflammation, when it might have been preserved by patience. Still we are no opponents to repeated operations when safe, and when they hasten the progress of absorption.

The problem as to the propriety or impropriety of such an operation as that described by M. S., appears very simple. The aqueous humour will dissolve the fragments, if detached, but it may do so in a very tardy manner, and their presence may prove a source of serious accidents. Are the fragments in the pupil unaltered after an unusual length of time? The inference is plain—their vitality is preserved by their remaining attachments, and they should be either detached, or removed to a place in which they will not endanger vision nor embarrass the movements of the iris. Are they gradually becoming less? They will be absorbed with *time*, but if that time, and the form and position of the fragments produce a risk of serious accidents or very great inconvenience, then their position should be changed, and their absorption promoted, if necessary, by a subsequent operation.

The circumstances in which the capsule is placed, in cases like that under notice, do not differ essentially from those in which we find the lens itself in cataract. The opaque capsule, particularly when much lacerated, is more difficult to manage than the lens, but it is liable to nearly all the modes of operation employed upon the lens. M. S. depressed, and it would appear that he performed the operation wisely, skilfully, and successfully.

The complete luxation of the tibia, backward, described by M. Blanchard, of Rheims, a case full of interest, which follows next in order, has been already detailed in the Quarterly Periscope of our last number, but we may now venture to analyse the accompanying report of MM. Breschet, Gimelle, and Sanson. These able commentators combat the opinion of Boyer, his predecessors and disciples, that dislocation of the tibia, backwards, are produced by too great flexion of the limb. They point out the mechanical impossibility of such hyper-flexion, and they draw a correct distinction between the causes producing the two several forms of this luxation:—1st, that with flexion of the leg on the thigh, and impossibility of extension, caused by the forcing upward of the tuberosity of the tibia while the limb is flexed; and 2nd, that with severe undue extension of the leg on the thigh, shortening of the member, and impossibility of flexion, caused by the forcing backward of the tuberosity while the limb is extended.

The first of these accidents is the only one previously described by authors. It is extremely rare, cases having been witnessed and recorded only by Heister, Walshman, and M. Sanson. The second, pointed out theoretically by Sir A. Cooper, does not appear to have

been witnessed by any other surgeon than M. Blanchard, of Rheims, whose case is therefore unique.

The author of the observation seemed to consider the recovery of his patient without the destruction of the functions of the joint, as a proof that the accident may be attended with less severe injury to the ligaments, &c. than is generally supposed. The commentators very fully disprove this position experimentally, showing the constant disruption of the posterior fibres of the internal lateral ligaments, and injury to the neighbouring tendons and the aponeurotic envelope, (that of the rectus femoris alone retaining its integrity in all cases,) the occasional rupture of the external lateral ligament or dislocation of the upper head of the fibula, and the still more frequent tearing off of that part by the contraction of the latter ligament. The crucial ligaments being inevitably broken in all such accidents, were sacrificed in the experiments just mentioned.

The easy reduction and favourable termination of M. Blanchard's case, as well as that of the three others mentioned above, contrast rather strongly with the opinions expressed by most authorities on the prognosis of all luxations of the knee, and especially with the positive directions of M. Larrey, given in the very next memoir, always to facilitate anchylosis in such accidents.

"These facts," observe the commentators, "prove for the future, that in the most considerable displacements, the consecutive accidents are not always proportionate to the extent of the displacement, nor to the number and gravity of the lacerations which are produced. They contribute to establish the principle, that, whenever the articular surfaces are not laid bare, it will be proper to replace the parts in their natural position, to combat the primary accidents, and not to have recourse to an ultimate operation until circumstances determine its necessity."— p. 463.

The paper of M. Larrey, which has been already mentioned, will not detain us. It is founded on a case of compound lateral luxation of the knee, outward and a little backward, and nearly complete, with luxation of the patella outward, exposure of half the thickness of the internal condyle of the femur, and many serious bruises. The patient died without operation, on the fourteenth day of the accident, from pneumonia and cerebritis. The chief interest of the observation lies in the perfect facility with which the articular cartilage of an inflamed joint, denuded by slough, was examined, handled and incised. Neither pain, vascularity, nor swelling were at any time noticed, and the separation of portions took place by a scabby exfoliation.

R. C.

Art. XVII. *Practical Observations on Strangulated Hernia, and some of the Diseases of the Urinary Organs.* By Joseph Parrish, M. D., pp. 330, and 4 plates. Philadelphia, Key & Biddle.

Dr. Parrish has divided his work into two parts; the first of which treats of *strangulated hernia;* the second, of diseases of the *urinary organs.* The following catalogue *raisonée,* will serve to convey some idea of the topics discussed in the two chapters included in the first part. The titles of the several chapters are, *Difficulties of the Diagnosis of Hernia; Treatment of Hernia; Diagnosis of Mortification; The Management of Mortified Bowel; Artificial Anus; Entero-epiplocele; Concealed Hernia; Umbilical Hernia; Strangulation within the Abdomen; Anomalous Cases.* It will thus be seen, that the author has given considerable scope to his range of topics, each of which is treated in the order indicated; if not with the fulness of detail necessary in a systematic treatise, still to a sufficient extent to confirm much useful and interesting matter. The intention of Dr. Parrish seems, indeed, not to have been so much to make a treatise for the benefit of the student or the junior members of the profession, as to embody his extensive experience for the advantage of his compeers, who have already had some opportunities of becoming acquainted, by study and observation, with the subjects of which he treats. Hence, many important topics are only noticed superficially; the author contenting himself with a brief exposition of certain axioms, and a detail of such cases as are suited to illustrate and give force to his opinions. The presumption expressed in the introduction, "that medical men, who engage in practical surgery, have acquired, by previous study and dissection, a competent knowledge of anatomy, will, no doubt, be generally found true when confined to the large cities; but the author's experience, both as a practitioner and medical teacher, must have convinced him, that there are many, very many, in the ranks of the profession, those too, who are constantly liable to be called on to manage the very accidents which form the subjects of his book, whose anatomical knowledge by no means qualifies them for the responsibilities they must unnecessarily incur in such situations. Such, at least, is the result of our own observation; and as Dr. Parrish could not have designed his work for city practitioners exclusively, we feel ourselves obliged to complain, that he has not given a short and intelligible description of the anatomy of the parts through which hernial protrusions take place. Such an addition would have been exceedingly valuable, and would have contributed in no small degree, to give greater force to many of the opinions advanced, and to add to the usefulness of the *observations.* The omission, we consider a serious defect; the more especially, as some of the occasional anatomical remarks made by the author, may tend, we think, to mislead those whose knowledge of anatomy does not qualify them to form correct inferences from them. We extract the following remarks in relation to

femoral hernia, which are certainly calculated to convey an erroneous idea of the situation of the parts, concerned in that disease.

"It will be recollected, that the great femoral artery and vein are contained in the same sheath which envelopes the hernia, and the epigastric artery should also be borne in mind. The last mentioned vessel arises from the external iliac, just as it passes under Poupart's ligament, where it takes the name of inguinal artery; hence its origin is very near to the outside of the reflected edge of Poupart's ligament, called Gimbernat's ligament, which is the seat of the stricture:—a very slight division of the ligament outward would separate the artery at its origin."

If the parts forming the covering of a femoral hernia be carefully dissected, it will be found that the hernia and the femoral vessels are *not* contained in the same sheath as the author has represented, and as was formerly believed, but that the protrusion takes place through the crural ring, which is situated between the femoral vein and the margin of Gimbernat's ligament, and which, in the natural state, is closed by a membranous expansion attached to the contour of the opening, denominated *cribriform fascia* by Cooper, and by Julius Cloquet, *crural septum*. This aperture is separated from the vessels by the inner portion of their sheath, and the occurrence of a hernial protrusion within, and along the course of the sheath of the femoral artery and vein, is exceedingly rare. The statement of the author, that the origin of the epigastric artery "is very near to the outside of the reflected edge of Poupart's ligament, called Gimbernat's ligament," is liable to be misunderstood by those unacquainted with the anatomy of the parts. Gimbernat's ligament forms a crescent, the edge of which looks outwards, towards the femoral vessels. The space comprised between this crescentic edge and the femoral vein, is the crural ring, which, in the male, increases from six to ten lines; in the female, sometimes an inch; and, as the artery is situated at this point, on the outer side of the vein, it follows that the breadth of the crural ring, (from six to ten or twelve lines,) and the diameter of the vein, must intervene between the outer *margin* (proper) of Gimbernat's ligament, and the origin of the epigastric artery. The outer margin of the crural ring is certainly very near to the origin of the epigastric artery, especially where the aperture is dilated by a hernial protrusion; and the proximity is rendered still nearer by the sweep made downwards and inwards by the artery, in the vicinity of the internal abdominal ring. It is this which renders that vessel liable to be wounded in dilating the stricture in femoral hernia upwards and outwards, and it is, doubtless, to this relationship between the parts that the author's remark is intended to apply.

No disease is perhaps more frequently mistaken for another, than colic for strangulated hernia. The symptoms of the two affections are so analogous, that the most experienced in the art of diagnosis are often unable to distinguish them, except by a careful examination of the groins, and the other points at which hernial protrusions usually occur. Few mistakes on the part of the practitioner involve such fatal consequences. While his whole attention is directed to what he supposes to be merely an attack of colic, a portion of bowel is pro-

truded and constricted; its circulation is arrested; and the mistake is not discovered, perhaps, until the strangulated organ is involved in gangrene, or the patient, as is too often the case, is allowed to die of a disease, which, if discovered in time, might be safely overcome by an operation. We have witnessed not a few such mistakes, and, we doubt not, that many individuals have fallen victims to what was supposed to be an attack of colic or intussusception, who were, in reality, destroyed by strangulated hernia, which was not discovered, because the practitioner neglected to make a proper examination. Dr. Parrish has reported a very interesting case in which such a mistake was made, and impressed, as we are, with the consciousness of the frequent occurrence of fatal accidents from similar negligence, we are of opinion that the author has not, in his whole book, laid down a more important precept, than that which enforces the propriety, *in every case of colic, of suspecting strangulated hernia.*"

Another point upon which fatal mistakes are often made, is in attaching too much importance to fecal discharges, where symptoms of strangulation exist. Many practitioners are apt to suppose, that if feces and flatus are discharged from the lower bowels, strangulation cannot exist. It should be remembered, however, that these may proceed from the portion of the intestine situated below the seat of stricture. In many cases, moreover, it is very properly conjectured by the author, that the frequent use of injections, especially when administered by the pipe and bag, may introduce a considerable quantity of wind into the bowel, which being returned with more or less fecal matter, may convey the idea, that no obstruction exists. The cases adduced in illustration of this truth, show clearly the necessity of great caution, and especially indicate the necessity of attaching no great importance to the discharge of feces and flatus, so long as the symptoms of strangulation remain unalleviated.

Amongst the diseases resembling hernia, the following case is an example of one of rather uncommon occurrence.

"The patient was an old coloured man who, some years ago, was brought into the alms-house infirmary, labouring, as was supposed, under strangulated hernia. He was affected with vomiting, severe pain in the abdominal region, tympanitic abdomen, tenderness on pressure, and obstinate constipation. It was ascertained that he had been affected with rupture for many years; and that strangulation had taken place occasionally. There was a distinct tumour in the groin.

"Under these circumstances, a consultation of the surgeons of the institution was called to decide on the propriety of an operation, and the students were collected to witness it. I recognised in the man an old Dispensary patient, whom I had frequently attended; and recollected that, on one occasion, I had seen him in an attack of strangulated hernia, and had reduced the parts by taxis. On a close examination of the tumour, we were all struck with its flabby and inelastic feel, differing very much from the firm and elastic feel of a strangulated hernia. As the case was obscure, it was concluded to postpone the operation until further light could be thrown on it. The next day, the friends of the patient removed him from the infirmary, and Dr. Hewson saw him. The symptoms continued unabated, and the patient died.

Dr. Hewson obtained permission to examine the body, and found that the

tumour was caused by a hernial sac very much thickened by chronic inflammation. This old sac had been affected with recent and violent inflammation, which had extended to the peritoneum, and involved it also in general high inflammation."

The observations "on the means of reduction employed before the operation," are judicious, but as they add nothing to our stock of information on that subject, we shall pass them over. We shall pursue the same course, in relation to the directions given by the author for the performance of the operation. We may remark, however, that Dr. Parrish, with the view of maintaining the flexed position of the limbs after the reduction, recommends an angular box and a pillow under the thighs and legs of the patient. Should the bowels continue constipated after the first effects of the operation are over, small doses of castor oil with enemata may be safely resorted to, but the author cautions against the employment of rigorous measures, to prevent apprehended danger after the operation. He remarks:—

"It should ever be borne in mind, that the system has received a severe shock—and after the removal of the cause which produced it, some time should be allowed for agitation to cease. Hence, mild and soothing treatment, with occasional opiates, will be more likely to produce a happy result than an indiscreet resort to rigorous antiphlogistic means."

The question of the propriety of returning the hernia, after the division of the stricture, without opening the proper sac, is not yet settled. Notwithstanding a majority of the best surgeons recommend that the sac should be opened, there is very respectable authority in favour of an opposite practice. Mr. Key, of Guy's Hospital, has lately published a work, in which he strongly enforces the propriety of returning the hernia without opening the sac, and there are several surgeons of the present day, who recommend the adoption of that procedure. It can unquestionably be practised in some cases with great ease and safety; yet it must not be concealed, that, in many instances, it is impracticable, and some in which it would be attended with great hazard. In the course of a little more than twelve months, we have operated on four cases, two of inguinal and two of femoral hernia, in which, after dividing the stricture, as we thought, completely, we could not return the hernia, until the sac was opened. But could the protruded organ be returned in all cases, serious objections may be urged against such a method of operating. A mortified intestine might be returned into the abdomen; a stricture may exist in the neck or some other portion of the sac, or the adventitious bands and adhesions which so often form between the convolutions of the intestine, the protruded omentum, &c. Under such circumstances, the strangulated organ would be forced into the abdomen, and the operation, instead of relieving the symptoms, would be followed by an exasperation of all the mischief. There are no necessary objections against the practice of not opening the sac; many valuable lives have been lost by the adoption of such a procedure, and when these grave consequences are duly considered, we think they ought not to be allowed to weigh against the trifling risk of peritoneal inflammation and other accidents, which have been urged as an objection against the usual

method of operating. We fully concur with Dr. Parrish in his disapproval of returning the intestine or omentum without opening the sac to ascertain the condition of the parts within. He cites a very interesting case, which, though not operated on, affords a strong illustration of the propriety of the rule of practice recommended by him. An individual affected with urgent symptoms, was found, on examination, to have a hernial tumour, as large as a goose-egg, on the left side, the point at which he experienced the most violent pain. This was finally reduced, so as not to leave a single vestige of the tumour. A couple of hours afterwards, however, all the symptoms of strangulation were removed, and, notwithstanding all that was done for the relief of the patient, the case terminated fatally. Dissection revealed the true nature of the case, and confirmed a suspicion previously entertained, but which, unaccountably, did not have sufficient weight in the minds of the attending physicians, to lead them to perform an operation, which might have relieved the patient, if timely executed.

"On opening the abdomen, we found the whole mass of the intestinal tube, commencing at the strictured part and extending upwards, distended with air: the vessels of the omentum, as well as those of the mesentery, very much injected with blood, and the greater portion of the intestines bearing evident marks of inflammation. The seat of the disease, however, was confined to the jejunum, which, for the length of twelve inches, had lost its colour, and was in a complete state of sphacelus. A portion of this intestine was confined in the inner portion of the abdominal ring, where the hernial sac formed a stricture round it, which having also participated in the general mortification, was totally disorganized, and could easily be torn away by the nail. So complete had been this adhesion, that when it was ruptured by a very slight effort, a hole in the intestinal canal, about the size of a shilling, was produced. We also noticed another hole near it, of the same size, having all the appearance of an ulcer. Having cut open the intestine at its most diseased point for a few inches, pus, and a remarkable black appearance on the internal coat, were observed. A remarkable spot about the size of a half dollar attracted our attention. It was situated about the middle of the transverse portion of the colon. It was very evident to us, that the intestines contained in the right side of the abdomen, but more particularly in its lower region, had been the seat of a more extensive and acute inflammation than those situated on the left. The inguinal ring, which was diseased, as we have already noticed, on the left side, had protruded in the abdomen as much as an inch, by the increase of its volume."

It is well known to those who have often performed the operation for strangulated hernia, that much embarrassment is sometimes experienced in distinguishing between the hernial sac and the intestine. Dr. Parrish reports a case in which a difficulty of this kind was occasioned by the presence of a layer of coagulated blood between the outer surface of the sac, and the adjacent layer of fascia. The nature of the case was, however, soon ascertained, and, after opening the sac, the strangulated intestine was liberated and returned. In another instance, in which Dr. Price operated, the parts were found gangrenous, and, after some little delay in attempting to decide whether the part which presented was sac or intestine, a part of what was finally considered by all to be a portion of the sac, was pinched up and divided, when it was found to be the coats of the intestine, altered by gangrene. The patient, however, finally recovered.

The following case is an example of stricture within the sac.

"I was called (this day) in consultation with Drs. Betton and Moore, to visit a labouring man, at Peter Robinson's mill, Roxborough. The patient had a small strangulated rupture on the left side. It could scarcely be called scrotal, but was rather a bubonocele. He had been bled very freely, and various unsuccessful efforts had been made to relieve him by Drs. Betton and Moore. The strangulation had existed between seventy and eighty hours.

As we were all united in opinion that no time was to be lost, and as the patient consented to the operation, a dose of laudanum was exhibited, and, with the assistance of my medical friends, I proceeded to perform it.

After making the usual incision through the integuments, and taking up several small arteries, I came down to the hernial sac. It was found to be thickened, and contained no fluid. Here a difficulty arose; and much care was required to avoid wounding the parts within the sac. It was soon ascertained, that the patient had an irreducible omental hernia, closely adhering to the sac. It required no little time and great care to separate the adhesion and expose the omentum. After this was accomplished, no intestine was apparent, although the symptoms of strangulated bowel were clearly marked. It was soon discovered that there was a small but very tight stricture in the hernial sac itself, not far from the abdominal ring. This was divided by the aid of a small director and bistoury. It was not until this was accomplished, and the parts were unbound, that the real character of the case was made to appear. The liberated omentum was laid on one side, and a small portion of strangulated intestine was exposed. But the difficulty had not terminated even now, for the intestine was still bound by a stricture at the abdominal ring, which I divided with the blunt-pointed bistoury and director. The intestine was inflamed, but not gangrenous. The omentum was of a dark colour. I now reduced the intestine without difficulty, and it was concluded that the omentum should remain undisturbed. The wound was dressed, and the patient put to bed. I left him under the care of his medical attendants. He recovered most happily, and called on me, not long afterwards, in the city."

It sometimes happens, after the stricture has been removed by an operation, and the intestine returned, that the bowels remain obstinately constipated, and no feculunt evacuations can be induced. This may depend upon a variety of causes, but in a case which fell under our notice about two years ago, the difficulty was of a character not generally suspected in such cases. We were called upon by our friend Dr. Baer to operate on an elderly lady for a strangulated femoral hernia of the right groin. The operation was performed in the usual manner, and the intestine, (a portion of the ileon) which was much inflamed and adherent to the sac, was liberated and returned without difficulty. All our means to excite discharges from the bowels proved ineffectual, and the patient, being advanced in years and very feeble, sunk after the expiration of some hours. Fearing that a portion of the intestine which had been returned might have still remained strangulated, permission was obtained to examine the body. On laying open the abdomen, the part of the ileon which had been contained within the hernia was found perfectly free, of its natural volume, and only distinguishable from the rest of the tube by its red inflamed appearance. The whole extent, however, of the segmoid flexure of the colon was found violently inflamed, and so firmly contracted, apparently by spasm of its fibres, as to preclude the passage of the feces downwards, and interrupt the transit of the injections which had been

employed during life to excite the action of the bowels, they being returned as soon as thrown up.

For the relief of this obstructed state of the intestines after an operation, Dr. Parrish recommends mercury introduced into the system in extremely minute portions. Calomel, in the dose of a quarter or one-sixth of a grain, given every one or two hours, is the form he recommends. Several cases are detailed by the author in which the symptoms of strangulation did not yield until "*the gums were touched by the use of small doses of calomel;*" and in one, fecal discharges were not induced until eight days after the operation, yet the patient recovered.

It is customary in the books to indicate a certain series of symptoms as characteristic of mortification of the strangulated intestine. In practice, however, it is often found that all such characters are fallacious; instances being of frequent occurrence in which the usual symptoms supposed to indicate the existence of gangrene are very manifest, yet on opening the sac the organs are found to be still possessed of vitality. Occasionally, indeed, cases occur in which, after all reasonable prospect of recovery seems to be at an end, all the symptoms being of a character to lead to the supposition that the parts are profoundly involved in mortification, the hernia returns spontaneously into the abdomen, or is reduced by art, and the patient is restored to health. On the other hand, the bowels sometimes become gangrenous in a few hours, even when the symptoms of the case are by no means urgent, and the surgeon is surprised on opening the sac to find its contents completely mortified. Dr. Parrish has discussed the subject of mortification of the intestine from hernia at some length, and has detailed several interesting cases in which the organs were found in this condition. He "considers *an ash coloured and shrivelled or collapsed state of the intestine* as a much more certain indication of its death than any of the signs yet enumerated." Another evidence of mortification which he regards as conclusive, "is the peculiar cadaverous odour emitted by the contents of the sac when opened." "Often," says he, "have my olfactory nerves afforded decisive evidence of the melancholy fact that mortification had taken place, before my eyes have had an opportunity of giving it additional conformation."

The following interesting case, communicated to the author by Dr. Condie, forcibly indicates the possibility of recovery even under the most threatening circumstances. We shall omit part of the details, and merely extract the description of the condition of the patient in the advanced stage of the disease, together with the termination, and the means by which it was brought to a fortunate issue. The individual was a female about fifty years of age, extremely ignorant and obstinate. She had been for some time affected with reducible femoral hernia, which, on the 10th of October, 1832, while the patient was engaged in some laborious occupation, became suddenly strangulated. Dr. Condie, who was called, resorted to the ordinary means of relief employed in such cases, which were persevered in without success—

12*

the symptoms all the time being exceedingly urgent, and the patient resolutely opposed to an operation.

"On the morning of the 12th," says Dr. Condie, "I was sent for in great haste. I found the patient in a state of great prostration, with a small, feeble pulse; cold clammy skin; contracted features; and throwing up from the stomach at intervals, a dark green fluid. She complained of very little pain, excepting when the abdomen, or hernial tumour was pressed upon. The latter, which had been previously tense and elastic, had now a somewhat doughy feel. The vomiting of green fluid was succeeded, in the course of the morning, by discharges from the stomach of fecal matter in considerable quantities.

"The patient now expressed a wish that Dr. Parrish might be called in. This wish was immediately complied with, and the doctor attended in the afternoon, accompanied by his son. The features of the case were now, in our opinion, such as to render all chance of recovery utterly hopeless; and I am convinced that any medical man would have concurred with us in this opinion, had he examined the prostrate condition of the patient—the cold, clammy skin—the feeble, and almost extinct pulse—the sunken and contracted features—and the fecal vomiting.

"It was decided that from an operation under such circumstances, but little benefit could be expected: it was agreed, however, to give the patient this doubtful chance of relief, provided that, after a candid statement to her, of our views of the case, she should request it. She, however, positively refused to submit. It was agreed, on separating, that I should inform Dr. Parrish in the morning, of the condition of the patient.

"On calling the next morning to see the patient, I found her still alive, and that she had called in a black man, celebrated in the Neck, (*the low country south of the city*,) as a 'curer of ruptures' *both in men and in cattle.* I remained, being somewhat curious to watch his proceedings. The hernial tumour he had covered with a poultice of bruised herbs—*the leaves,* so far as I could judge by the smell, *of stramonium*—and he was preparing an infusion of herbs to be used as an injection. This infusion was evidently of senna leaves. The injection he proposed to administer every fifteen minutes, by means of a very large and very powerful syringe. He spoke confidently of the successful result of the case.

"I saw the patient again on the following morning, and, to my utter astonishment, found her in a tolerably comfortable condition! The hernia was reduced; all the alarming symptoms, under which she had laboured on the preceding day, were gone; and, though extremely weak, she was evidently in a fair way of recovery! I learned, that after continuing the injections for nearly two hours, there occurred a copious evacuation from the bowels of a number of hard balls; and that then, suddenly, the tumour had disappeared with a gurgling noise. These balls had been preserved for my inspection; they were formed of hard, dark-coloured feces, of different sizes, from that of a pea to that of a pistol ball, or even larger.

"The patient continued daily to amend, and at the termination of *ten days* from the reduction of the hernia, was seen by me *sweeping off her door!*"

We pass over the subjects of the treatment of mortified intestine, artificial anus, &c., to notice what the author has been pleased to denominate "*expatriated omentum;*" a strange term, truly, to be applied to one of the organs of the abdomen, and which the author has, we think, very correctly observed, may occasion some readers to smile. The condition of the omentum which Dr. Parrish thinks receives "a brief but just illustration" from this term is, that in which this organ "is very much altered from its original structure, from the fact of its having been long excluded from the abdomen." We think we understand the author's meaning; but certain we are, that we are not indebted to this fallacious term for the justness of our conceptions;

nor do we conceive that it is in any wise better calculated to afford either "a brief or just illustration" of this condition, than the applications of expatriated intestine, expatriated brain, or expatriated femur, would afford of an enterocele, a hernia cerebri, or an old dislocation at the hip joint. We beg leave to enter our protest against the introduction of all such terms into our vocabulary, and we unhesitatingly do so, lest from the force of example, we should have all our organs sent into exile, by the lucubrations of some future son of Esculapius.

But to resume the consideration of the subject itself;—the author asks, what is to be done with expatriated omentum? If, says he, a small portion presents itself, and can be conveniently cut off, no danger need be apprehended from hæmorrhage; but when a large mass is encountered, it has generally been my practice to allow it to remain undisturbed. That cases may occur, in which it will be proper to excise a portion of the omentum, we will not deny, but we are convinced that such instances are comparatively rare. The practice of drawing a tight ligature round the root of the omentum, and then cutting it off in front of the point at which it is tied, is properly condemned by Dr. Parrish; and he considers the plan adopted by Potts, of excising the omentum, and returning the sound parts into the abdomen without tying the vessels, as unsafe. He nevertheless reports several cases, in which a small portion of the altered mass was cut away, without leading to a fatal result, and one still more important, in which it became unnecessary to secure one vessel by ligature.

We extract the following case of concealed hernia, as well on account of its importance, as the singular condition of the strangulated intestines.

"9th mo., 1818. I was lately called in consultation with Dr. Perkin, to visit J. E., a middle-aged man, corder at Race street wharf. I was informed, that four days previous to my visit, he had been seized with constipation of the bowels, pain, and vomiting. All efforts to relieve him had utterly failed. My first question was, has he been afflicted with rupture? The doctor said he had examined the groins, but could discover nothing—though the patient had been the subject of hernia.

"I now made a very careful examination, and could find no tumour. The patient himself believed that his rupture had no concern in his symptoms.

"We met again in a few hours; and found that the patient had been sinking rapidly. At our next visit, a few hours after, he had a cold, clammy sweat, with a feeble pulse; tense and tumid abdomen; an absence of pain. His stomach now retained every thing that was given.

"I again examined for hernia, being convinced that the symptoms strongly indicated it; but I was satisfied that nothing had passed the abdominal ring. I then remarked to Dr. Perkin, that perhaps strangulation might exist at the internal ring; but as there was no tumefaction to guide us to the part, we did not consider it justifiable to cut down into the abdomen; merely upon conjecture. A few hours after this visit the poor man died.

"*Dissection.*—Dr. Perkin dissected the body, and informed me, that he found a hernial sac below the ring, but it did not descend low in the scrotum. About five inches of intestine was found in the sac in a state of strangulation; it was of a very dark colour, but not actually mortified. The bowels above the stricture were enormously distended with flatus, but the portion within the sac was flaccid, and its sides were in contact."

As the operation proposed by Dessault, for the radical cure of umbilical hernia is not now often performed, we extract the following

successful case, with the remarks of the author, in the justness of which we fully concur.

"Dessault has recommended a plan for the radical cure of umbilical hernia, which he has frequently performed, and considers quite safe. I pursued this plan many years ago, in a case in which I was concerned with Drs. Wistar and Physick. The case resulted favourably, though not without considerable anxiety on our part. It is detailed in this place, not with a view of recommending the operation, but to show that it is not, in every instance, so trifling an affair as one might be led to conclude.

"With my present experience, I would not repeat the operation in a similar case, but would prefer relying on the efforts of nature, with an observance of the directions just noticed.

"Case XXXVI.—*Umbilical Hernia—Radical Cure*—10th mo. 31st, 1810. S. A., aged about twenty-two months, has had an umbilical hernia from his birth. This day in consultation with Drs. Wistar and Physick, I commenced an attempt to produce a radical cure according to the plan of Dessault. Dr. Wistar took the tumour between his fingers, having first returned the contents of the sac. I now passed a ligature three times round the base of the integuments and the sac, and secured it at each turn by a double knot. The ligature was only drawn tight enough to give an inconsiderable degree of pain: the child did not cry.

"11th mo. 1st. The child has not appeared to sustain any inconvenience. His bowels are rather lax. He is kept on a soft vegetable diet, especially rye mush. The tumour looks a little faded in colour, and rather shrunken. It now appears as if the parts were disposed to form another sac behind the one which has been inclosed in the ligature; but as pressure on this protruded part does not cause it to return, there is reason to believe that it is occasioned by the cellular membrane being a little inflamed and thickened.

"2nd. The patient is still free from pain and uneasiness. On inquiry, it appears that he rubbed off the ligature this morning: an inflamed ring marks the place where it was applied, and the integuments containing the sac are certainly a little thickened. While fixing him for the purpose of applying the ligature again, he became restless and cried; but it really appears as if the protrusion of the bowel is not so great as before the first application.

"The integuments were now taken hold of by Dr. Wistar, as before, and I passed the ligature rather below the place where the previous one had been applied, and secured it by three turns, with a double knot on each turn, drawing it considerably tighter than before. This ligature gave rather more pain than the first, but not a great deal.

"3d. The ligature retains its situation very well. The lower part of the tumour appears of a purplish hue. The tumour itself is rather tense. The patient does not appear to sustain any material inconvenience; he plays about, and is very lively.

"4th. The tumour seemed a little shrunken, and it was concluded to pass a ligature sufficiently tight to intercept the circulation. This was accordingly done, without removing the other ligature. It gave considerable momentary pain, but it appeared soon over.

"5th. The tumour looks black. A vesication filled with bloody-coloured serum has been formed near its base.

"8th. The ligature retains its situation. The vesicated part has dried completely, and the whole surface of the tumour is of a light-purplish colour. It appears to be rather hard. On puncturing it with a lancet, it did not bleed, but the tumour has not shrunk.

"11th. The exterior covering of the tumour appears to have sloughed away, leaving a living surface beneath, from which some pus escapes; and pus is also formed about the ligature. Some slight inflammation is apparent in the skin near the tumour; for this I directed a poultice containing some lead-water.*

---

* About the time of the application of the poultice, the extent of the ulcerated surface caused me considerable uneasiness; had the child been attacked with severe cough, or long-continued crying, there would, I believe, have been some risk of a rupture of the new-formed parts, and consequent protrusion of the bowels.

"15th. *Morning.* The poultice has been continued until this day. The ligature has gradually cut through the greater part of the integuments, leaving the sac nearly bare, and a considerable cavity in the integuments. *This has not a pleasant appearance.* I now passed the last ligature round the tumour, and drew it quite tight. On visiting him in the *afternoon,* for the purpose of applying adhesive strips, so as to give as much support as possible to the parts, I found that the integuments had gradually contracted since the poultice had been removed, and I believe that the poultice was certainly the cause of the parts looking so relaxed, and the ulcer so large, as they did in the morning. The child still enjoys fine health and spirits.

"16th. The ligature and tumour came off this morning, leaving a small aperture and granulations over its surface. A piece of adhesive plaster was applied over the part, compresses placed on it, and a bandage carried over the whole, to complete the dressing.

"Cicatrization took place very soon, and the cure has proved complete."

The second part of the work before us, is divided into five chapters, the subjects of which are, *Retention of Urine; The Catheter; Stricture of the Urethra; Tic Douloureux of the Urinary Bladder; Nephritis.* Many of these topics we shall be obliged to pass unnoticed. The following statement in relation to diseased prostate deserves notice.

"Dr. Physick was consulted in the case of an elderly gentleman of this city, who has laboured for nine years under a disease of the prostate, and has suffered severely from occasional attacks of retention of urine, requiring the use of the catheter. On a late occasion, Dr. P. was called to him, suffering under an unusually severe attack, the continuance and severity of which had almost exhausted him. He prepared a small flexible catheter, to the extremity of which was attached a portion of very thin bladder, firmly secured by silk thread, which was covered with wax. The instrument thus prepared was introduced without much difficulty into the bladder. Warm water was then injected through the catheter, and the bag thus distended. An attempt was then made to withdraw the instrument. As the distended bag entered the passage through the prostate, considerable pain was produced; but it was allowed to remain for some minutes in this situation, and was finally brought through by gradual means. Some blood flowed on withdrawing the instrument. The operation afforded speedy relief, the health of the patient rapidly improved, and he remained free from a return of his symptoms for more than a year."

All experienced practitioners are aware of the difficulty and embarrassment experienced in the management of such cases. Any suggestion, therefore, calculated to relieve or mitigate the poignant sufferings of the unfortunate victims of this form of disease, deserves to be attentively considered, and honestly tested, even though the range of its application, or the extent of its usefulness, be limited. For this reason we extract the following remarks, premising that, notwithstanding the benefit experienced in the particular cure, and the favourable opinion of our author, we should feel some reluctance in resorting to such a course of treatment. The case in question was treated by Dr. Wistar.

"He tapped the distended bladder of an elderly gentleman above the pubis, in consequence of his inability to introduce a catheter; the difficulty being caused by an enlargement of the prostate gland. In this instance the patient wore a gold tube, in the opening made by the operation, through which the urine was discharged without difficulty. From having been the subject of great suffering for years, he was by this means enabled to enjoy comparative comfort; his health improved, and was so far restored that he was in the practice of riding out to his country seat, several miles from the

city, not only in his carriage, but sometimes on horseback. Nearly two years elapsed under this favourable change. In the interim the diseased prostate had so far recovered, that the patient could pass water through the urethra freely and without pain. Thinking that the disease was cured, he removed the tube, and relied entirely upon the natural passage. The consequence was, a renewal of the disease in the prostate, of which he finally died. A small fistulous opening continued above the pubis, but the bladder never rose sufficiently high to admit of a repetition of the tapping, and the tube could not be replaced."

The following extract will serve to show the favourable opinion of this procedure entertained by Dr. Parrish.

"Possessing, as I do, but little confidence in the remedial agents employed for the cure of enlarged prostate, and viewing even palliative means, in some instances uncertain, I have arrived at the conclusion, that if, in the dispensations of Providence, I should ever be subjected to this malady, I would certainly avail myself as a last resort, of the operation of tapping the bladder above the pubis. It would be far preferable for a man in advanced life, to be subjected to the inconvenience of wearing a tube, through which his urine could be discharged, than to be afflicted with a painful malady, by which he would be led to a slow and painful death."

Having run thus hastily over the several topics embraced in the work before us, we must bring our analysis to a close. We have endeavoured to select the most important subjects for notice, and have in most instances stated our author's views, without comment. The work is almost purely practical, and coming as it does, from a highly distinguished member of the profession, of long and extensive experience, we have refrained, in some instances, from expressing objections, because we were unwilling to oppose our humble opinions to those of one whom we feel convinced, allows himself to form no hasty conclusions. Only in a few instances, however, candour compels us to confess, have we found any grounds to differ from the author—his book consisting for the most part, of the fruits of his own extensive experience, and the exposition of such practical precepts, as may be legitimately deduced from the materials furnished by his own book. On these grounds, Dr. Parrish's labours merit the attention of the profession. We feel convinced, that in publishing his observations, he has been actuated by a desire to benefit suffering humanity. But while we appreciate highly his benevolent purpose, a sense of duty compels us to say, that we do not think he has added materially to our stock of knowledge on the subjects of which he has treated.

E. G.

BIBLIOGRAPHICAL NOTICES.

ART. XVIII. *An Attempt to Investigate some Obscure and Undecided Doctrines in relation to Small Pox, Varioloid, and Vaccination.* By LUTHER V. BELL, M. D., of Derry, N. H. Published in Boston, 1836. 8vo, pp. 72.

This publication contains the results of the author's personal observations, made during several years' extensive attendance on variolous epidemics; and interests us, not only from the high merits of the writer, but from the almost constant existence of the small pox among us. For upwards of thirty years, variola was almost an unknown disease in this, and we believe, in every other portion of our country; and seemed scarcely to require the student's attention, further than was necessary to satisfy curiosity in regard to a malady, which had destroyed so many, and left such indelible marks upon those whose lives had been spared. Now, however, it behooves all connected with the profession, to study diligently, not only the disease, as described in the older authorities, but as modified by recent unaccountable agencies.

We shall briefly advert to a few of the interesting points treated of; and first, the question, *whether small pox is ever of spontaneous origin?* The facts bearing upon this question, the author does not regard as sufficiently numerous to justify a positive decision; hasty conclusions from a too limited number of facts, having, as he very justly observes, ever been the bane of medical philosophizing.

He states, however, that in the greater proportion of variolous epidemics which have occurred in New England, within the last two or three years, hardly a single one could be traced to an unequivocal source of contagion, although investigated with the utmost strictness. He refers particularly to three instances, to which his attention had been directed within the last year, that were accompanied with such circumstances as to form, at least, some ground for the belief in the occasional spontaneous origin of the disease.

In regard to the question—to what extent small pox is capable of being transferred by personal communication, &c.—he brings evidence of a negative kind, sufficient to show, that the disease, if communicable at all from the contagion adhering to an individual, is by no means readily so. Such a conclusion, certainly accords with the ample experience of the practitioners in most of our cities, and a happy circumstance it certainly is, for them, and the community at large.

But the most important topic is the one relative to the modification produced on small pox by vaccination; in considering which, he adduces several very conclusive facts, in proof of the identity of varioloid and small pox, so far as the production of each other is concerned. Among other cases, we find the following:—

"A young woman, 22 years of age, was vaccinated when a child. She was attacked with the usual symptoms of modified small pox. For the first few days,

the fever was severe; on the third an eruption appeared, amounting to about a hundred pustules on the whole surface. They soon after became vesicular, then horny or crystalline, and soon after disappeared. Six weeks after, she was delivered of a dead male infant of five months, covered with marked small pox eruption. The pocks, which in number exceeded one hundred, were elevated, flat on the top, and from one-eighth to one-fourth of an inch in diameter, and uniformly had a depression in the centre. The fœtus, still in possession of Dr. Bogert, has been seen and examined by several medical men, who have unanimously pronounced it a case of pure small pox, apparently at the third or fourth day of eruption."

"A very interesting case of small pox in the *fœtus in utero*, occurred in my practice last spring, at Candia. Mrs. R., advanced to the seventh month of pregnancy, was seized with small pox, which assumed a very confluent form. Notwithstanding a conjunction of severe moral and physical shocks, (having lost her husband and eldest daughter during her own attack,) abortion did not occur. Dr. Samuel Sargent, her ordinary attending physician, has lately informed me by letter, that at the expiration of her full term, she was delivered of a healthy child, whose abdomen and thighs are marked with decided small pox pittings, and which was insusceptible of the vaccine disease."

The proportion of persons attacked with small pox or varioloid, after *undoubted* vaccination, appears to have been far less numerous in the practice of Dr. Bell, than it would seem to have been in Europe, from the reports made there within the last twelve or fifteen years. Of the degree of immunity from death by small pox, afforded by the vaccine disease, he says, "the evidence is conclusive and overwhelming; enough to sustain the triumphant character of the discovery and its author, and to put to shame the few, who have dared, in recent times, to propose relinquishing it for the former practice of inoculation. *The general rule is*, (the assertion may be safely hazarded,) *that the vaccine disease is a perfect security against death from the small pox.* The few undoubted instances of a fatal result are exceptions, only enough in number to strengthen it; the proportion being, probably, not one in thousands."

He states it as the result of his personal experience, that no instance of death, when vaccination was made prior to exposure, has occurred in more than two hundred cases of variolous disease attended by him, and a very large number of other cases he had witnessed. In some few instances a slight pitting ensued; not sufficient, however, to produce disfigurement of the countenance.

Dr. Thompson, in his account of the variolous epidemic, which appeared in Edinburg, and other parts of Scotland, speaks of the occurrence of varioloid in persons who had neither had small pox nor the vaccine disease. Other writers upon the subject have made similar observations; but our author's experience has not furnished him with any cases calculated to verify such an opinion.

On an unexpected irruption of small pox, it becomes a point of deep interest to the unprotected, to know how long after exposure, they may secure themselves by vaccination. It is familiarly known, that when the small pox and vaccine matters are inserted at the same time, the small pox is either mitigated or entirely prevented; and hence, the propriety of vaccinating in all cases previous to the occurrence of disease, where persons unprotected have been exposed to small pox contagion. Our author states, that he has the minutes of cases, in which there were no evidences of vaccination having taken effect, until the individuals had been exposed seven, eight, nine, ten, and eleven days to small pox, in its most malignant form,

when the succeeding varioloid was of the mildest character. In these cases, however, the patients had been placed on a precautionary treatment and diet, and were usually vaccinated daily, until it was evident the vaccine matter had taken. He mentions this curious fact, as the result of his own experience and repeated observation,—that persons exposed within a variolous atmosphere are very insusceptible of the vaccine disease. This insusceptibility to vaccination, leads him in cases where small pox occurs without the possibility of procuring vaccine virus in proper time, to recommend inoculating with small pox, such unprotected persons as have been decidedly exposed to its contagion; a recommendation which, however, we think should not be thought of, unless the persons inoculated can be excluded from all others; for should they be scattered among the community, the evil would be multiplied instead of diminished.

Our author considers himself warranted in the general inference, that *small pox is not communicable during the eruptive fever, nor in the early period of the eruption.*

Upon the subject of the causes of failure in vaccination, to prevent the small pox, he admits, that although there is no doubt that cases of small pox, and modified small pox after vaccination, were not infrequent from the very first periods of cow-pock inoculation, there exists the most authentic proof of the constant increase of their proportion. And this naturally leads him to examine the interesting questions,—what are the reasons for this deterioration in the protective powers? Has the vaccine virus become deteriorated in its character, by the succession of individuals it has passed through?

He declares himself satisfied, that no deterioration of the vaccine virus has taken place from its passing through individuals in a long succession, from the following reasons:—"1. The absence of evidence of any superiority of protection in the vaccine matter. 2. From the supposition of a deterioration being irreconcilable with the phenomena of small pox, which loses none of its virulence by repeated inoculation; however long it may have been transferred in this way, whenever it is received into an unprotected subject its character is unchanged. 3. The appearance, progress, symptoms, and resulting cicatrix of the cow-pox from the virus now, is precisely similar to what it was thirty-five years ago in this country and in Europe; and here, at least, no pretence can exist that the natural source has ever been recurred to."—p. 45.

In a report made in 1833, to the French Royal Academy of Medicine, the results of experiments are given, tried by M. Fiard, for the purpose of reproducing the vaccine virus from the cow. Soon after the adoption of the practice of vaccination, it was stated that the virus could be transmitted from the human subject to the cow, and vice versa; but M. Fiard was unable to inoculate more than six or seven cows of seventy, upon which he experimented; in addition to this, the eruption was excessively feeble, and the matter, when re-inoculated on children never produced any effect. M. Fiard, even procured cow-pox matter from England; with which, however, he did not succeed in France, in producing the disease in the animal. M. Fiard, argues from the results of his experiments that, if no degeneration had taken place in the vaccine virus, it ought to possess the property of being transmitted from the human subject to the cow, and the reverse, as readily at the present day, as when vaccination was first promulgated. This

is certainly a plausible inference; but we think no more can be said of it; believing, as we do, in the arguments just quoted from our author, in support of its non-deterioration.   The efficacy of the vaccine virus, like that of the variolous itself, to protect the system against future attacks, seems certainly impaired from some cause or other; but to assign the mysterious circumstances connected with this and other exanthematous disorders, is more than can be done in the present state of knowledge; and, therefore, when asked a question, which goes deeper than we can fathom with the line of our understanding, we may feel authorized to parry it after the adroit manner once exhibited by Dr. Cheyne, quoted by our author.   This celebrated physician, being asked to explain how it happened that the measles never afflicted the same person twice, replied to his interrogator,—"tell me why they have it *at all*, and I will then tell you why they have it only once."

But we must curtail our observations upon the various topics embraced in the treatise before us, lest we transcend the limits assigned to this department of the Journal.   We, therefore, pass over without particular notice, the experiments of Dr. Sonderland, of Bremen, in transmitting variola through brutes; tried elsewhere with contradictory results.   Upon the important topic of spurious forms of vaccination, and the various causes interfering with its efficacy, we shall merely stop to observe that the proposition advanced by Dr. Howison, vaccinator of the Royal Dispensary, Edinburgh, "that the perfection and scarcity of the vaccine vesicle will be in proportion to the freshness of the vaccine virus," is refuted by our author, who by a series of experiments, demonstrated, to his own satisfaction, at least, that when matter, obtained at the same time from the same source, was inserted weekly upon new subjects, so long as it preserved its efficacy, the progress, symptoms, cicatrix, insusceptibility to re-vaccination and to variolous inoculation, are in all respects similar in the last and first cases.   That the "security" is diminished by the age of the matter, he, therefore, disbelieves in toto, for the above and other reasons which he assigns.   The chance of its taking effect is diminished by keeping; but whenever the matter does take, the protection afforded is as great with the old as with the new matter. This conclusion, we believe, accords with the observation of all our most intelligent physicians.

It has become a very popular opinion, fostered indeed, by some high professional authorities, that the protecting power of vaccination is diminished or destroyed by age, and the system becomes again liable to receive the small pox.   The limit of protection has indeed been fixed variously at seven, ten, and twenty-one years.   The evidence of some of the best writers, would seem to prove the reverse of all this—namely, that the greater the lapse of time, the greater the security; a position which, however, may be as incorrect as the former.   Our author's testimony upon the subject, is contained in the following extract.

"A constant endeavour for a number of years to collect facts in relation to this point, has as yet produced no evidence in my mind of any change from the lapse of time.   I have seen repeatedly, the modified form of small pox occurring in individuals, who were only just through a decided vaccine disease; and in others when twenty, twenty-five, and thirty years have elapsed; which proportion of cases, recent or long standing, has obtained to the greatest extent, I can hardly say.   Thus I can state, generally, from personal experience, that I see no reason

for believing that any alteration of the vaccine prophylaxis occurs, either from time or the changes of puberty."

At the present day, the greatest number of persons attacked with varioloid, are certainly the vaccinated, for the simple reason, that they constitute much the largest portion of the population.

Among the various notions prevalent in relation to this subject, it has been stated, that the degree of immunity afforded by the vaccine disease, is enhanced by subjecting the system repeatedly to vaccination: and thus, as the advocates of the practice have expressed it, effecting a complete saturation with the vaccine influence.

"This belief," our author tells us, "seems based on certain experiments, in which, after ordinary vaccination, the operation was soon repeated; a tubercle arose, which was deemed the result of lesser susceptibility to the vaccine disease; the process was renewed a third, fourth, or even fifth time, occasioning a less and less inflammatory action, till no other effect was produced than would arise from the mere puncture."

"Were the result of this test uniform, it would go far to render this opinion probable; but experience has demonstrated to me, that a second vaccination frequently produces no soreness, whilst in individuals of a different habit of constitutional health, or cutaneous susceptibility to morbid impressions, this false vaccination will occur as many times as the arm is punctured with a lancet, touched with the vaccine, or any impure secretion."

Whilst sufficient facts are wanting in favour of the reputed effects of what is termed *saturation* of the system, to produce a more perfect exemption from varioloid, evidences of the insufficiency of such a practice exist, of which the occurrences on board of one of our public vessels, the North Carolina, offer a striking example. In a cruize made by this ship up the Mediterranean, she shipped at Norfolk a crew of 900 men, most of whom had been vaccinated, or had had the small pox; but were, nevertheless, twice vaccinated prior to the ship's sailing; a third time at Gibraltar; and a fourth time at Port Mahon. Dr. Henderson, who reports these facts, states that, notwithstanding this *ultra* re-vaccination, under such various circumstances of virus, climate, &c., 157 of the crew had the varioloid.

We have thus endeavoured to furnish a brief sketch of the essay of Dr. Bell, which may be read with profit, by all practitioners. For, although it treats of subjects of rather a trite character, yet are his conclusions, in general, so just, as to assist and confirm many who have been wavering in opinion upon certain points connected with the more obscure and undecided doctrines relating to vaccination, varioloid, and small pox.   G. E.

Art. XIX. *Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London. Volume the nineteenth.* London, 1835, 8vo, pp. 416.

The nineteenth volume of Medico-Chirurgical Transactions, whether considered in reference to the number and variety of the papers contained in it, or the intrinsic value of each, demands a much more extended notice than unfortunately either our time or space will permit us to give to it. We know of no work of a similar character which presents a larger amount of valuable facts and practical observations in almost all the departments of the healing art, than the several volumes of these trans-

actions; the present being in no degree inferior to either of the preceding. It comprises nineteen papers, all of them upon subjects of very great importance, and from the pens of gentlemen whose professional reputations are well established both at home and abroad.

The first paper comprises the history of nine cases of Fracture of the Neck of the Femur with the appearances observed after death, by John Howship, Esq. These cases, we are informed, are not presented as demonstrating the full extent of the constitutional powers occasionally manifested in the production of ossific union, but as suggesting certain remarks illustrative of that process, which may probably form the subject of some future communication.

The second paper is by Cæsar Hawkins, Esq. and gives the detail of seven cases of Warty Tumour in Cicatrices, with remarks.

The tumour which Mr. H. denominates the warty tumour of cicatrices, makes its appearance, he remarks, "in some old scar, many years after the injury which has produced it has been healed, whether a burn, a cut, or a laceration of the skin."

"It arises equally from a flogging or a scald, in which the skin alone has been injured, or from a cut or gun-shot wound, which injures also the tendons or bones below the skin, and makes a more complicated cicatrix. There appears, in the first place, a little wart or warty tumour in the cicatrix, which is dry and covered with a thin cuticle, but which soon becomes moist and partially ulcerated, like the warts of mucous membranes, from which a thin and offensive semi-purulent fluid is secreted. In this stage it gives no pain nor uneasiness."

"In the second stage the growth of the tumour becomes more rapid, the warty appearance being in some measure lost, a more solid substance projecting from the diseased skin, which bears much resemblance to the fungus of hæmatodes; the formation of fresh warts being still seen around the tumour, and preceding the change which has been alluded to. The tumour is very vascular, and bleeds when touched, but its irregular surface still allows the probe to pass through its structure, except where it is most firm."

Even when of large size, the warty tumour is essentially a disease of the skin.

"The cutis around the tumour which has not yet become prominent in the form of warts, is thickened and fibrous, and divided by furrows, having very much the appearance of the skin from which the hoof of the horse grows, and to which it is attached. The section of the central tumours is firm and smooth, but, if carefully examined, may still be found to consist of fibres rising perpendicularly from the base of the tumour, where it is attached to the fascia; all trace of the original texture of the skin being here lost, though it may be gradually traced into the unchanged part of the cutis of the cicatrix around the tumour."

Mr. H. observes, that, while he wishes to assert the origin of the warty tumour from the texture of the skin, he is perfectly aware that a disease of some bone may be *added* to the alteration of the skin, as is shown in two of the cases related by him.

The tumour, we are told, may be easily and safely removed from any part of the body.

"In the leg, indeed, the removal of the whole limb must generally be preferable, where the tumour is at all extensive; but if its size admits of excision, there need be no fear of the disease being re-formed in any texture except the skin. Still, however, if there be any doubt, whether the bone below may have become carious, or otherwise diseased, from the proximity of the tumour, a portion of it may be taken away without adding to the length of confinement." "There can be no doubt that the removal by the knife is far more effectual than any attempts to destroy it by caustics, since the whole thickness of the skin requires to be re-

moved, and the action of caustics is too uncertain to lead to any reliance upon them. Experience shows the same thing with regard to the much smaller tumours producing phagedenic ulcers of the face in elderly persons, which, though sometimes destroyed by the use of caustic, are often irritated and made to spread with increased rapidity, where the caustic has been insufficient entirely to destroy them."

"After the tumour has become solid and prominent, a new action takes place in it, and the tumour ulcerates and sloughs alternately, with a great deal of pain and suffering, and it is destroyed down to its basis, so as to present the appearance of a foul excavated ulcer, except in its circumference, where the skin is raised, thickened, and everted, and from time to time warts are generated, which again ulcerate and slough, till the patient becomes gradually worn out by suffering, but without at all the sallow and peculiar aspect of a person dying of a malignant disease; and, on examination of the body, no disease of the absorbent glands is found, nor is there, as far as I know, any sign of malignant disease in the interior of the body."

The next paper is the Description of an interesting case of Abdominal Tumour, with the appearances on dissection, by John Howship, Esq. Independently of other traces of extensive disease, the most striking feature in this case was the existence of a large tumour, occupying more than half the abdominal cavity, principally upon the left side. The tumour appeared to be seated on and attached to the lumbar vertebræ. It was encysted, and measured, from above downwards, as it lay in the abdomen, eight inches; its circumference, subsequent to removal, being nineteen inches. It was moderately vascular and contained several cysts, communicating with each other; it was filled partly with a thick purulent matter, but principally with a grumous bloody fluid. Its external parietes were strong and compact and about one-eighth of an inch in thickness. The most curious circumstance, is, that this encysted tumour was in fact one of the lumbar absorbent glands enormously enlarged. "That it was so," remarks Mr. H. "is proved, not only by the particular situation in which it was found, but also by the detection of several other glands of the same cluster in an earlier stage of a similar disease, two of which, removed with the mass, still remain attached to the large tumour."

The history of a case of Pulmonary Phlebitis, by Robert Lee, M. D., possesses great interest, from the extreme rarity of the disease; it is the only instance of it, which has fallen under the notice of Dr. Lee.

The succeeding article is entitled Observations on Ulceration of the Cartilages of Joints and on Anchylosis, by Herbert Mayo, F. R. S. The principal object of the present paper—

"Is not to multiply proofs of vital forces being inherent in cartilages, but to establish certain pathological differences which the author believes to have been overlooked by others, in ulcerative diseases of joints. With this purpose, he has described several cases and dissections which have fallen under his observation. These tend to show that articular cartilages are liable to three distinct forms of ulceration, or exhibit three varieties of ulcerative disease, which, although they may be occasionally combined, are oftener met with separately.

"The cases first described, are instances of rapid absorption of cartilage, beginning on its synovial aspect, the new surface, if of cartilage, being smooth and unaltered in structure; if of bone, healthy; the absorption of cartilage being attended with inflammation of the capsular synovial membrane.

"The second series exemplify chronic ulceration of cartilage, beginning on its synovial aspect, producing an irregularly excavated surface, with fibrous or branchlike projection of the cartilage and synovial membrane, attended with inflammation of the capsular synovial membrane, and sometimes of the same membrane
13*

where it is reflected over the cartilage; the bone and surface of cartilage towards it being healthy.

"The third are instances of ulceration of cartilage, beginning on the surface towards the bone, attended with inflammation of the adjacent surface of the bone, with inflammation of the synovial membrane, and, in some instances, with sensible vascularity of the cartilage itself."

We regret that our limits will not permit us to present an abstract of the very interesting cases detailed under each of these three classes.

The next paper is a Case of Sudden Illness in Advanced Pregnancy, terminating in the delivery of twins and death, with an account of a singular laceration of the peritoneal coat of the uterus, as detected on the post-mortem examination. By W. H. Partridge, Esq.

"Mrs. B., the mother of six children, was seized about 11 o'clock, A. M., on the 25th of August, being then in the beginning of the eighth month of utero-gestation, with abdominal pain, and vomiting of bilious matter. After the lapse of two hours, a watery discharge, mingled with coagulated blood, took place from the vagina. Mr. P. saw her at three, P. M., when she appeared pale, faint, and sunk in countenance, like a person suffering from extreme hæmorrhage, though the quantity of blood she had then lost was inconsiderable. As he was apprehensive labour would be the consequence of such continued vomiting, he gave her a dose of opium and enjoined her strictly to keep the recumbent posture. The sickness continuing, about 5 o'clock one of her attendants gave her some brandy, which allayed it, but shortly after labour pains commenced, and, about seven, Dr. P. was sent for in haste, and, on his arrival, found the patient just delivered of twins, each child enveloped in its proper membranes, with the placenta attached. The contents of the uterus were expelled by a violent contraction, which left her much exhausted; and during the application of the bandage, the abdomen heaved violently, the impulse forcing the epigastric region remarkably forward. The pain continued very severe, and Mr. P. gave her another dose of opium, but without any alleviation of the pain, which increased in intensity till she expired, at a quarter before nine. Rather more discharge than usual had followed the delivery, though less than many women lose with impunity."

"On opening the abdomen, (on the following day,) a quantity of thin dark-coloured blood was found, which amounted to about forty ounces. There were no coagula. The uterus was well contracted, and, on its anterior part, quite natural, excepting an ecchymosed appearance of the cellular texture around the tubes and ovaries, but on the posterior surface a considerable number of transverse lacerations were discovered, all more or less curved in form, with the convex part towards the fundus, averaging from half an inch to two inches in length, and varying in depth; some were mere fissures, as though made by a penknife. One was particularly large, measuring three inches in length, and nearly two in breadth in its centre. A flap of detached peritoneum had fallen down, and the raw and fibrous structure from which it had been torn, was exposed as completely as it could have been done by the most careful dissection. The immediate cause of death was probably exhaustion from internal hæmorrhage and intense pain."

The seventh article is on the Chemical Constitution of Calcareous Tumours of the Uterus, and other parts. By John Bostock, M. D.

The results of the analyses detailed in this paper, confirm the opinion that had been previously entertained respecting the chemical composition of these bodies; that they are, for the most part, composed of phosphate of lime and animal matter, generally united to a small quantity of carbonate.

The following paper, by Dr. Robert Lee, is on Fibro-calcareous Tumours and Polypi of the Uterus.

"The most important diseases of the human uterus," remarks Dr. L., "accompanied with sensible alteration of structure, may be divided into three classes.

"1. Those which are produced by inflammation of one or more of the textures which enter into the composition of the uterus.

"2. Those which arise from the formation of tumours in the parietes of the

organ, or from enlargement of the glands situated in its orifice, which have no tendency to degenerate into a malignant form, and do not contaminate the surrounding structures.

"3. Those which result from a specific and malignant action of the uterus, by which its different textures and the adjacent viscera become disorganized."

The phenomena and treatment of the diseases comprehended in the first of these classes, Dr. L. has described in the fifteenth and sixteenth volumes of the Medico-Chirurgical Transactions; in the present paper he treats on the pathology of fibro-calcareous tumours and polypi, these being "the most important organic affections included in the second class of diseases of the uterus."

This paper does not readily admit of such an analysis as will comport with our limits.

The ninth article is entitled, Further Remarks on the ulcerative Process, by C. Asten Key, Surgeon to Guy's Hospital.

Close observation of the process of ulceration, under its varied modifications, has led Mr. K. to regard it, in its strict signification, not as an absorbent action, "but as a process of degeneration, or a softening of tissue, analogous to that action by which the medullary part of the brain and scrofulous tubercles become converted into a purulent mass."

Pus in an abscess, he contends, to be at first the product of a softening process, and afterwards a secretion from the vessels of the walls of the cyst.

"Ulceration is a process analogous to the softening attending suppuration; it is a degeneration of tissue, a change in the affinities existing between its component parts, by which it becomes changed from a solid organized texture to a fluid inorganic mass. It differs from gangrene in being a vital action; while gangrene, by at once producing death in a part, prevents any such change taking place."

This is an interesting paper; its length, however, prevents us from attempting an analysis of it.

Some remarks on Malformation of the Internal Ear, being the result of post-mortem investigations performed in five cases of congenital deafness by Mr. Edward Cock, communicated by Dr. Bright, is the subject of the next article.

"The subjects examined were all children who died of strumous diseases of the thoracic and abdominal viscera. In three instances, one or both ears were the seat of scrofulous ulceration, affecting the tympanum and meatus externus, with partial destruction of the membrana tympani. In one case, the cavity of the tympanum, together with the mastoid cells, was completely filled with the thick cheesy deposit of scrofula, whilst a similar affection pervaded the whole cancellated structure of the petrous bone. The connexions of the osicula auditus were destroyed, but the bones themselves remained entire. I merely mention these facts, as indicating the strumous habit of body, which I believe," says the author, "prevails very generally among the deaf and dumb; for, as these affections could have existed but for a short time previous to death, they can hardly be supposed to have had any connexion with the congenital defect in the organ of hearing."

"In all the cases examined, the petrous portions of the temporal bones exhibited more than the usual varieties of size and shape. In some the bone was so deficient in particular spots as barely to cover the internal cavities, whilst in others there appeared a preternatural osseous developement. In one instance, the petrous bone of a child twelve years old, exceeded in size, hardness, and compactness of structure that of any adult which I have witnessed.

The malformation which was discovered in two instances, consisted in a

partial deficiency of two of the semi-circular canals. The extremities of these tubes opening into the vestibule were perfect, but the central portions were impervious, or rather did not exist at all. In the first case, only one ear was examined, but in the second case both. On the right side, the middle portions of the oblique and vertical canals were wanting; on the left side they presented a similar imperfection. The scala tympani likewise was terminated, at its larger extremity, by a bony septum, which separated it from the tympanum, and occupied the situation of the membrane of the fenestra rotunda. With the exception of these malformations and the scrofulous affection of the tympanum, no deviation from the healthy state could be discovered in either of the five subjects examined. The eustachian tubes were pervious; the bones, muscles, and membranes, entire and natural; the labyrinths were filled with their transparent fluid. In no instance did the auditory nerve present any peculiarity, although carefully traced from its origin to its distribution. The chorda tympani was present in every instance, but Mr. C. cannot vouch for the integrity of "all the little nervous fibrillæ, which pass into the tympanum and ramify on its walls, requiring the aid of a microscope for their dissection.

In another case, which was dissected by Mr. Dalrymple, the aqueduct of the vestibule was so large as to admit the passage of a small probe, whereas, in the natural state, a fine hair can with difficulty be introduced into the canal.

The ensuing paper is on the same subject, being the examination of the organs of hearing, from the body of a boy, aged 13 years, who had been the subject of congenital deafness. By J. Thurnam, Esq. In this case, the horizontal semicircular canal was imperfect on the right side, in about the outer third of its extent; no trace of sacculus or utriculus vestibuli or of membranous semicircular canals was discovered. On the left side, the osseous semicircular canals were complete, but no utricle or sacculus was met with; there were, however, very minute, gelatiniform, membranous, semicircular canals.

The thirteenth paper is the relation of some Cases of Mental Derangement, successfully treated by the acetate of morphia, by Dr. E. J. Seymour.

The morphia "appears to have been of more use in what is termed melancholia, where the mind is tormented by imaginary want, ruin, or crime, than where the derangement partakes of more brilliant ideas, as of superhuman knowledge, dexterity, or wisdom; or in those cases in which one single idea occupies and absorbs the mental powers."

Cases and Observations illustrative of Diagnosis where Adhesions have taken place in the Peritoneum, with remarks upon some other morbid changes of that membrane, by Richard Bright, M. D., constitute the subject of the fourteenth paper. The character and length of this interesting and valuable article, oblige us to pass it over without attempting an analysis.

The next paper is by Dr. John Elliotson, on the Medicinal Properties of Creosote. Dr. E. commenced his trials of the remedial effects of this remedy, by administering it in cases of phthisis and epilepsy.

"The medicine proved stimulating; and, if the first dose exceeded two or three drops, nausea, vomiting, vertigo, head-ache, and heat of the head, were generally the consequence: although, if the dose was at first only one or two drops, many patients bore a gradual increase of it to six, and some to ten, twenty, or even

more, without unpleasant effect. · As is observed with all powerful remedies, a very minute dose only can be borne by some persons."

Dr. E. found it much more liable to disagree with the stomach, when not well diluted, though the longer it is given the less dilution frequently is necessary.

"At first every drop usually requires about half an ounce of water, and few persons can take many drops in much less than half a pint, without experiencing, at least, considerable heat, in the tongue especially, and in the pharynx, œsophagus, and stomach." Dr. E. has "always suspended it in the water by first mixing it with a little mucilage."

The trials made with the creosote in phthisis were perfectly unsuccessful. Dr. E. is satisfied that it is not a remedy for tubercles.

"Where, however, only a single ulcer, or but a small number exist in the lungs, and there is no disposition to farther tubercular formation, it is very beneficial. One young gentleman, with a large solitary cavity in his left lung, has completely recovered, and not the slightest morbid condition is discoverable by the ear. In bronchorrhœa, or that state of the bronchial mucous membrane which consists in a profuse secretion without inflammation, Dr. E. has seen the inhalation of creosote of essential service." "In asthma, also, dependent upon morbid excitability of the bronchial membrane, its inhalation is often useful. Even where it agrees perfectly well, the inhalation frequently induces a heat of the tip of the tongue."

With respect to the trials made with creosote in epilepsy, a few patients, for a time, had milder fits, and at longer intervals. But, except in one or two instances, the disease returned with its former severity, or was uninfluenced altogether; occasionally it appeared to be rather aggravated. The tranquillizing effect of creosote in some instances, encouraged Dr. E. to exhibit it in neuralgia, hysteria, and that general morbid excitability which is sometimes denominated extreme nervousness. In the first cases of neuralgia in which it was tried, it appears to have been perfectly successful. But, like all the other remedies employed in this disease, it will, remarks Dr. E., frequently fail, "for neuralgia, like epilepsy and paralysis, depends upon many causes, and these must require various modes of treatment, and be in their nature sometimes uncontrollable. In rheumatic neuralgia, not inflammatory, 1 imagine it is, that creosote is the most successful. In that morbid tenderness of the surface of the body which appears so nearly allied to neuralgia, and which so often occurs in females, I have not seen it of any use."

"In common hysteria, unconnected with inflammatory condition of any part, I have often seen it considerably lessen the disease; the more rare and strange forms of hysteria have yielded to it; and the morbid excitability of those who are called nervous persons, I have frequently seen abated by it in a remarkable manner. In the latter description of persons, however, it is better to begin with no more than half a drop, as occasionally more at first produces excitement of the head. Palpitation, depending upon mere morbid excitability of the heart, has yielded to it far more than to other remedies."

Dr. E. considers, that, from his experience, the extraordinary power of creosote in arresting vomiting, when independent of inflammation or structural disease of the stomach, is perfectly established. He knows of no remedy to be compared with it in arresting vomiting. He has repeatedly seen it succeed after the failure of prussic acid. The dose for this purpose and the frequency of repetition will differ in different cases. More than two drops he has seen sometimes aggravate the sickness, and sometimes he has begun with three drops every three hours, and been obliged even to give more. One or two drops may be given every hour or half hour, till

the vomiting ceases, and, if a dose is rejected, it should be repeated immediately. The first dose frequently succeeds. He has tried it successfully in numerous cases of Cholera.

"In colic and enteritis, it arrests the vomiting long before the bowels are opened, and purgatives are thus retained, which were all rejected previous to its exhibition. Even in a case of severe vomiting, apparently from arsenic, which usually excites inflammation of the stomach, Dr. E. has known it succeed astonishingly, as well as in the only case of vomiting from pregnancy in which he has had an opportunity of trying it: and in sea-sickness, in which, however, his experience of its power is yet limited. Of course, as it subdues vomiting, its power is equally great over nausea."

Although Dr. E. has sometimes seen mere gastrodynia unrelieved by creosote, and has found that symptom to be more certainly subdued by prussic acid, yet "numerous cases of general derangement of the stomach, liability to nausea or vomiting, acidity, pain, &c. often yield to it in a most remarkable manner." When the chief or almost only symptom has been flatulence, Dr. E. has occasionally found the creosote to produce no relief or even augment the symptom. When gastrodynia or flatulence has been united with other symptoms of derangement of the stomach, Dr. E. has combined prussic acid and creosote with great benefit. When, indeed, either fails in dyspepsia, he would advise their union.

Dr. E. has tried the creosote in diabetes, apparently with good effects. Of its external application he speaks favourably.

"When an ulcerated surface has required a stimulus, or when a slough, or unhealthy, perhaps offensive, discharge existed, he, like others, has seen it of great utility. As it prevents or arrests putrefaction, and removes all taint in dead matter, we cannot be surprised at its removing the offensive nature of discharges, whether from mucous membranes or ulcers, and preventing the injurious effects of diseased animal matter upon the part with which it is in contact. When the contents of the intestines have been very offensive, Dr. E. has impregnated clysters with it advantageously; and has employed it as a wash in mercurial foetor as well as ulceration, and in foetor of various parts of the system. He has seen foul ulcers become clean, and ulcers of long standing have sometimes healed rapidly on its application. Its agency in vomica and bronchorrhoea is clearly the same as in its external application. In two cases of pruritis podicis it lessened the distress considerably, after every thing else had failed. Here it was applied pure, as in cases of tooth-ache, which it often at once removes. But usually from half a drop to two or three, diffused in mucilage in an ounce of water, is sufficient, though its application must be very frequent. It appears to have been sometimes useful in porrigo, employed pure or variously diluted."

The sixteenth paper is on the Functions of the Fœtal Kidney, by Dr. Robert Lee. The facts adduced by Dr. Lee, seem to him to demonstrate that "the kidneys of the human fœtus, like the liver, intestinal canal, and thymus gland, are in a state of activity, and perform each their respective functions prior to birth." Of this we conceive there can be very little doubt.

To this paper succeed Observations on Fractures of the Bones of the Pelvis, by Henry Earle, F.R.S.; a highly important article, presenting the history of five cases of fracture implicating the bones of the pelvis, and concluding with the following remarks.

"It will no doubt be observed, that in the narrative of these several cases I have stated that the catheter was introduced, or attempted to be so, in each case. I take this opportunity of strongly urging the propriety of a cautious examination of the urethra in every case of suspected fracture of the pelvis: next to extensive internal bleeding, the most alarming and certainly fatal occurrence is effusion of urine. The former it may not be in our power to control or obviate, but the latter we may often prevent, and, by timely assistance, save the patient. Whenever it is clearly ascertained that the urethra is ruptured, and the catheter cannot be

passed into the bladder, it will be right at once to make a free incision in the perineum, and thus allow of a free exit for the urine. It fortunately happens in many cases that the effused blood compresses the urethra and prevents the escape of the urine, and thus time is allowed for taking the necessary steps, but these should on no account be delayed. In many doubtful cases of fracture of the pelvis, an examination with the finger per anum will enable the surgeon to detect the nature and extent of the injury."

On Serous Effusion from the Membranes and into the Ventricles of the Brain, and its connexion with apoplexy and other diseases of the brain, by John Sims, M. D., constitutes the subject of the eighteenth paper.

"It is a very prevalent opinion," remarks Dr. Sims, "that if a person, rather advanced in life, fall down in a fit and suddenly expire, or survive but a short time with coma, insensibility, stertorous breathing, &c., that if the head of such person be examined, and effusion to any extent be found between the membranes or in the ventricles, without any extravasation of blood, that death has been occasioned by what is termed serous apoplexy. This opinion, which is considered a satisfactory one, is often given to the surviving friends of a patient, and by the medical witnesses examined in cases of inquest before the coroner and other judicial tribunals. I think the following cases and observations will tend to show that this opinion is very frequently erroneous, and that they will, on the other hand, lead to the conclusion, that persons dying suddenly or speedily under these circumstances, are more likely to have suffered an attack of simple sanguineous apoplexy, or that form of disease in which a loaded state of the blood vessels is discovered on dissection. Of course I exclude from consideration all other causes of death in persons who may have suffered a sudden and fatal seizure."

The facts and observations adduced by Dr. S. are arranged under the following heads:

1. Serous effusion in the brain, or its membranes, of persons dying of various diseases not cerebral, and who had manifested no symptoms referable to the brain.

2. Serous effusion into the ventricles or membranes, to a considerable extent, in cases where old apoplectic cysts were found, with or without attendant paralysis: the patient being destroyed by diseases not cerebral.

3. Serous effusion into the ventricles or membranes of unquestionably long standing, with old apoplectic cysts: the patients being destroyed by recent extravasation of blood within the cranium.

4. Cases of simple sanguineous apoplexy.

5. Cases of serous effusion into the membranes or ventricles of old standing, with loaded, dilated, or diseased blood vessels, frequently denominated serous apoplexy, but more properly referable to simple sanguineous apoplexy.

The next paper, on Hypertrophy and Atrophy of the Brain, is by the same gentleman.

After presenting a very short summary of the opinions of a few authors who have written on the subject, Dr. Sims relates the history of several cases of hypertrophy which have fallen under his observation—he then attempts to ascertain the average weight of the brain of persons of all ages, from a very large number of cases in which the brain has been weighed. Short notices follow of a number of brains which exceeded the average weight, from various causes, but which scarcely come under the description of hypertrophy. The histories of several cases of atrophy of the brain, both general and partial, are next related, and, in conclusion, such inferences are drawn as the facts and observations detailed in the paper appear to warrant. This is a highly interesting article, but our limits will only permit us to insert the general conclusions of the author.

"1. It appears that pathological writers have hitherto had a very imperfect knowledge of the phenomena connected with hypertrophy of the brain.

"2. Cases of hypertrophy of the brain are met with where no change of texture can be discovered, and the enormous size of these brains arises from the mere addition of similar particles.

"3. Cases of hypertrophy occur, in which, added to the increased size of the brain, there is a change in the texture of the brain, which has been described as resembling boiled albumen, ground-rice pudding, cream cheese, &c.; a flattening of the convolutions; little or no blood or serous fluid in the vessels, cavities, or membranes of the brain. This state of the brain is of a more acute character, and is probably produced more or less rapidly by any causes that excite the brain or its blood vessels, or that increase general or partial nutrition.

"4. Hypertrophy is allied to or connected with apoplectic seizures, either as a precursor, a concomitant, or a cause; in this state of the brain simple sanguineous apoplexy may be more readily induced, or life may be destroyed by a very small clot of extravasated blood."

Dr. S. has no doubt that in the dissection of apoplectic brains, many cases of hypertrophy have been entirely overlooked, and the brain has been reported as normal. "Now believing," he adds, "that I am correct on this point, I take the liberty of impressing on the minds of medical practitioners the further investigation of this subject, in consequence of its obvious bearing on the practical treatment of apoplexy and other diseases of the brain."

"5. Extensive disorganization of the head and lungs may impede the return of blood from the brain, or so obstruct its circulation as probably to occasion hypertrophy, or enlargement of the brain.

"6. It is probable that in cases of sudden death, which, on dissection, have been attributed to a flaccid state of the heart, angina pectoris, spasm of the heart, &c., hypertrophy of the brain, causing simple sanguineous apoplexy, though unnoticed, may have been the sole cause of death.

"7. In the brains that are hypertrophied, both children and adults are sometimes destroyed by active inflammation of the brain, terminating in ramollissement; and also, this affection is frequently connected with the more slow form of ramollissement in adults, whether arising from inflammation or not.

"8. In some children who, from the size of the head, are suspected to be suffering under hydrocephalus internus, or the disease terminating in the deposition of fluid in the ventricles, it is highly probable that the brain is in a state of hypertrophy.

"9. The brain is sometimes affected partially by hypertrophy, either of one hemisphere, one lobe, or of the corpora striata or thalami.

"10. Hypertrophy is confined to the cerebrum; the cerebellum is not so affected.

"11. From a series of observations, it appears that the average weight of the brain goes on increasing from 1 year old to 20; between 20 and 30 there is a slight decrease in the average; afterwards it increases, and arrives at the maximum between 40 and 50; after 50, to old age, the brain gradually decreases in weight.

"12. The brain is sometimes unusually large, not amounting to hypertrophy, in persons dying of various diseases, especially in extensive pneumonia, and other diseases of the lungs and heart, and in these cases the brain is generally very much loaded with blood.

"13. The brain in the advanced periods of life, and in some diseases, is diminished in volume, or atrophied, either generally or partially, and there are certain marks observed in dissection by which this state of the brain may be known. It is also probable that there are symptoms occurring during life indicating atrophy of the brain.

"14. In phthisis pulmonalis, diseases of the stomach, and other emaciating disorders, the brain also sometimes undergoes a process of wasting.

"15. In cases of atrophy of the brain, the place previously occupied by cerebral substance is supplied by serous fluid, or by deposition of bone; and this deposit of bone frequently takes place on the inner surface of the cranium, sometimes in the diplöe.

"16. The cerebellum is subject to atrophy as well as the cerebrum."

The nineteenth and last paper in the volume is likewise by the same au-

thor. It is on the cure of "ramollissement" of the brain. The following are the inferences which Dr. Sims draws from the facts and observations contained in the body of his essay.

"1. In some of the cases the account of symptoms is necessarily very limited, but this circumstance I do not consider of much importance, as I am desirous of placing the subject on its true basis—the anatomy of the brain: in other cases, however, we have a sufficiently copious detail of symptoms which indicated the nature of the disease, and the progressive improvement in some of the paralytic symptoms correspond with the traces of the cure or arrest of ramollissement observed in the brain.

"2. The traces of the cure of ramollissement of the gray matter are, absorption of one or more layers of this substance on the convolution, and adhesion of the pia mater to the parts, holes in the gray matter of the corpora striata and other central parts, together with atrophy and flattening. When transudation from the blood vessels, or extravasation, has taken place, constituting real ramollissement in the gray matter, a permanent fawn colour of the atrophied convolutions, and of the small holes in the other parts, is observed. The slightest form of this softening of the gray matter is noticed in the case of puerpera hæmorrhagica; in others we have one or more layers removed, or the entire gray matter, leaving the white matter of the hemisphere visible. We sometimes see merely small holes in the corpora striata; at others, cavities of various sizes and forms, with a marked wasting of these bodies.

"3. The traces of the cure of ramollissement in the white matter are, the numerous clean or scooped out holes containing a limpid fluid, some of which are observed to be lined by a fine transparent membrane, others appear as if worm-eaten. These holes are of various sizes and forms, from minute points to the magnitude of a bean: the porous cheese or new bread appearance; the hardened state of the white matter generally in these brains, and particularly in the parts contiguous to the holes; the granular state of the white matter indicating cicatrices; the hardened state of the corpus collosum, fornix, &c. found in the brains of children and young persons, with fluid in the ventricles, probably the consequence of previous inflammatory ramollissement at an earlier period of life. Where there is observed the fawn coloured deposit in these holes of the white matter, they are traces of red ramollissement of the white matter, or probably, in some instances, of what has been sometimes termed capillary apoplexy.

"4. I have perhaps to assume in this argument that ramollissement is *by some means or other stopped in its progress;* and, if this be granted, the preceding detail of the morbid appearances will readily fill up the several steps of the process of cure: the absorption of the softened parts; the adhesion of the pia mater to the surfaces; the secretion of fluid into the holes; the granular state of the white matter, probably from cicatrization; the hardening of the white matter, probably from effusion of lymph; and the fawn coloured traces of previous transudation and extravasation. And I think this assumption ought to be granted, from the improvement in the symptoms of some of the patients, corresponding with the state of the brain after death; and because it is consistent with all analogy in the powers by which nature arrests or cures disorganization in other parts of the body.

"5. There are some points connected with the subject, as the spherical spots of coagulated blood, the extravasated layer on the arachnoid, the fawn coloured traces of extravasation between the arachnoid and the dura mater, and the connexion of the traces of previous ramollissement with apoplectic clots: these are subjects well worthy of attention, but I have sufficiently adverted to them in the remarks on the respective cases in which they occurred.

"6. The preceding facts and observations are, I believe, sufficient to attest the cure of ramollissement of the brain, and to set the question at rest on the solid basis of pathological anatomy."

We have now finished a hasty sketch of the contents of the volume before us. There is no one of the papers which are embraced in it that will not afford important information to almost every member of the medical profession, by whom they have not already been attentively studied.

D. F. C.

When we remember that a very large proportion of the population of Brazil is composed of negroes, either slaves or freemen; that they are scattered over an immense territory, on large plantations, remote from towns, and far from medical aid; that slaves have become of more value since the close of the trade, and importation of them in 1830, we may agree with the author in the necessity of placing in the hands of the "Fazendeiro," or planter, the means of recognising and treating the diseases to which the negroes are obnoxious, and rescue the poor beings from the errors of charlatanism, and the panacea called *Leroy,* a violent emetico-cathartic, which has been in vogue for a dozen years throughout Brazil. The manner in which Dr. Imbert has performed his task, is very creditable to him as a sensible practitioner, and a close observer. The work was originally written in French, and translated from the manuscript, as Dr. Imbert informs us by his friend, Doctor Josè Maria Frederico de Souza Pinto, a native practitioner, already favourably known by his works, in the literary world of Brazil. The language is excellent; the descriptions are graphic and very much to the purpose.

The population of Brazil, estimated from the number of houses, (supposing each to contain five free people,) as furnished by the returns of the election of Deputies to the National Legislature in 1833, amounts to 3,130,000 freemen, a large proportion of whom is black; and the slaves, equal to two-fifths of the whole, 2,086,666, making an aggregate population of 5,216,666 souls. But there is no estimate of the population which the free negroes, mulattoes and Indians bear to the whites.

Some idea may be formed of the activity of the slave trade in Brazil, prior to 1830, from the fact that the importation of slaves from Africa into Rio de Janeiro and Bahia, amounted to 52,773, in 1828; 52,823 in 1829; and 38,365, in the first half year of 1830. Of this number, one-third was usually lost by disease, brought on by cruel treatment, bad diet, change of climate, &c. Brazilian masters are represented as humane and kind to their slaves, who are comparatively well situated after escaping from the hands of the kidnappers and their numerous agents. Notwithstanding that the trade was closed by law in 1830, the number of slaves since smuggled into Brazil, is estimated to be from seven to ten thousand.

The introduction of ten pages, in which Dr. Imbert enumerates the several causes of diseases to which negroes are exposed, thus concludes: "From what we have said, it is easy to conceive that men cannot preserve their health, who are unrestrained by any social ties of the land; badly fed, badly clothed, exposed to all the vicissitudes of the atmosphere; subjected to labour almost continuously, and but too much inclined to indulge in gross pleasures, and in the use of strong liquors. Indeed they do not resist long; diseases attack them, and a treatment almost always ill devised, puts an

end to their days. Hence comes this alarming depopulation, and, above all, the disproportion observed betwixt the numbers of young and old; the number of the latter is infinitely small compared with the former—let any one say, after examination, whether this is not a fact. To what shall we attribute this difference, if not to those causes which we have suggested? How many reflexions may they not inspire in the minds of legislators, moralists and philosophers!"

The sale of slaves amongst individuals forms a very considerable branch of trade in Brazil; therefore, the first chapter of the work before us is taken up with the consideration of rules, by which to detect predisposition to disease, to select slaves in the market. Those from the Gold Coast are esteemed to be the best. The usual conformation of a well proportioned body, broad, full chest, free respiration, hair not too much crisped, legs free from ulcers, and indications of elephantiasis, which is a terrible scourge to the slave population, are the points chiefly insisted upon.

The second and third chapters treat of hygiene, and of the treatment of disease generally, with a short account of the several temperaments. The lymphatic is the most common amongst the white population.

The fourth chapter contains a brief description of the functions of digestion, and of the symptoms and treatment of dysentery, which is a much more unmanageable disease within the tropics, than we are accustomed to meet with in the United States. The features of this disease are too well known to require a description here. "In the first stage of the disease, when the pains of the abdomen, the dryness and heat of skin, the frequent and acrid dejections announce the highest degree of irritation or inflammation of the intestines, then," says our author, "I prescribe bleeding, locally, from the abdomen or anus, either by cups or leeches. I administer at the same time, barley water, marsh-mallow or flax-seed tea, &c., with syrup of gum arabic. All drink should be taken cold; a most rigorous diet is to be observed, and even gruels, (mingãos) and broths particularly, are to be inhibited. The abdomen should be covered with a cataplasm of linseed, or with cloths wrung out of hot flax-seed tea, and frequently renewed. Enemata of the same, but in one-half or one-fourth the usual quantity, are to be resorted to. That the cutaneous transpiration may be established, the patient should be properly lodged, his bed should be in a dry and elevated situation, and frictions to the limbs with baize, should be used.

Emetics of Ipecacuanha, two or three times repeated, have been much praised in the commencement of dysentery; but our author thinks they should be resorted to with caution.

"In the second stage, when the fever has diminished, and the pains of the bowels have abated, and the evacuations have become less frequent and liquid, it is proper to recur to other remedies. Then some farinaceous gruel may be allowed; from five to ten drops of laudanum should be added to each enema, which should be repeated four or five times daily. Then we pass to the use of rhubarb in the dose, of three grains with one of ipecacuanha. This should be administered in mixture, powder or bolus, from three to six times in the twenty-four hours; and it usually produces good effects."

"In the third stage, when the fever has disappeared without the evacuations having become natural, the treatment must be modified to meet the circumstances of the case. The diet should be less rigid; broths free from fat may be given. The enemata are to be continued; substituting for the flax-seed, however, an ounce of gum arabic, dissolved in eight or ten ounces of water, or a decoction of bran, with an increase of fifteen drops of laudanum. The number of these ene-

mata should not exceed two or three a day. If dull pain, without fever remain, or if the patient be unable to sleep at night, he may take in the afternoon, a half grain of opium, which may be increased to a grain."

So soon as the pain has entirely disappeared, the number of the evacuations reduced to three or four in twenty-four hours, and the dejections have gained some consistence, the disease may be looked on as drawing near its close. The patient may then take some light aliment, such as soup, rice, eggs, fish, sweet-meats, and a little water slightly coloured with wine, for drink. In this manner the patient is to return gradually to his usual diet.

"At the termination of the disease, warm baths by contributing to restore the functions of the skin, are very useful, and never prejudicial."

"During convalescence, the patient should be properly clothed, avoiding cold and humidity, and the powerful rays of the sun."

"But the disease does not always run a course so regular—the symptoms are aggravated, and the disease becomes chronic."

"When the patient is threatened with dissolution by the immoderate quantity of the evacuations; his forces exhausted; when the tongue becomes dry and black, the head and organs appear to be engorged, practitioners resort successively to camphorated quinine, decoction of the root of columbo, camphor in doses of two grains with four of nitre, administered four or five times in twenty-four hours, camphorated enemata; above all, the grand resource is in flying blisters on different parts of the limbs, and in desperate cases, on the lower part of the abdomen."

In chronic dysentery, Dr. Imbert recommends the use of a plant, known to botanists under the title of "*Bigogna obliqua.*"

Such is the plan of treating dysentery pointed out by our author, and which, after an experience of six years, I am disposed to prefer to all others. General bleeding is rarely useful; on the contrary, it is very often fatal, by exhausting the forces, and inducing the chronic form, which I look upon as incurable on board ship, between the tropics. Change of climate, removal on shore, with carefully selected prophylactic measures, hold out the only chance of recovery.

In spite of the high authority of Dr. James Johnson, I am not disposed to resort on all occasions to the lancet, or to the use of mercury, in hot climates; as a rule heroic remedies will not be followed by beneficial effects. I remarked several years ago, in the No. of this Journal for August, 1830, (p. 348,) that seamen within the tropics do not bear the loss of blood to the same extent as in higher latitudes; they are left free from disease, but so enfeebled that they require many months before they are sufficiently recruited to return to their duties.

The fifth chapter treats of Elephantiasis, or "Elephancia," a disease which was formerly seen in every street of Rio; at present it is not so commonly met with, but it is not the less frequent; the patients are better cared for, and kept out of sight. Dr. Imbert extracts the description of the disease from the first vol. of the "Transactions of the Royal Asiatic Society, Lond. 1826," given therein by Dr. Ainslie. Our author recommends mercury in several forms, both internally and externally, but says nothing of the success of his practice.

Chapter VI. treats of Tetanus, which occurs, both in negroes and whites, but in the proportion of ten of the former, to one of the latter. And death from *trismus nascentium,* is in about the same proportion.

"Tetanus is a disease most common in hot countries, and in them, it attacks negroes in preference to whites, and particularly young slaves.

"Tetanus is of two kinds; Essential and Traumatic.

"The primary, or immediate cause of essential tetanus, consists in a rapid transition from heat to humid cold, in great atmospheric variations, and in the suppression of the cutaneous transpiration, determined by these variations.

"Extreme sensibility of the nervous system, and irritation produced by any kind of wound, lesion, or surgical operation, constitute efficient causes of accidental, or traumatic tetanus.

"The immediate causes of tetanus, or locked jaw in infants, are the same as of essential tetanus; and it is sometimes produced by teething and the presence of worms in the intestines.

"Of all the means of preventing tetanus, the first is to avoid constantly, exposure to sudden atmospheric changes, and to take every precaution against suppression of perspiration; as regards babes, they should be guarded against all accidents to which, from the fragile state of their organs, they are much exposed.

"Finally, the remedies held most in repute in the cure of this terrible disease, consist in the co-ordinate and consecutive use of leeches, emetics, purgatives, opium, camphor, musk, tepid baths, narcotic plasters, and oily embrocations."

Such is the recapitulation of this chapter given by the author.

Chapter VII. treats of Intermittent Fever. Dr. Imbert considers the disease to consist of a certain state of the nervous system, which, however, he does not attempt to explain.

"Intermittent fever is proper to all regions, but occurs more frequently in hot climates, and it is particularly common in those where extreme heat is accompanied by humidity. Hence, in the capitol of Brazil, where these two qualities exist in a high degree, intermittent fevers are in a manner endemic. Physicians in Rio de Janeiro, rarely fail to remark, that every disease wears the intermittent type, owing to locality. This is a fact which cannot be denied, and we should pause to examine it, that we may ascertain the probable cause of it.

"Rio de Janeiro is an important city, which embraces within its precincts a very considerable population, composed of blacks and whites. Built upon the shore, it extends to a certain distance in every direction. Most of the streets are neat, and some of them are even tasteful. [In this we do not agree with the author— to our very eyes they are far from clean.] Few houses are more than two stories high, and many of them are of one only; the foundations are not sufficiently deep; the walls are thin, made partly of bricks, and (particularly) sand from the sea, which attracts and keeps up moisture; consequently these houses are constructed in opposition to the rules of hygiene. Though they have a great many windows to facilitate ventilation, they are nevertheless unhealthy; this very circumstance gives rise to currents of air, and consequently suppression of perspiration, which is termed in the country *constipacão,* or cold. The sea which seems to embrace this city in its arms, communicates and increases the moistness of the air. In fact, Rio de Janeiro is nearly surrounded by the sea, by the bays of Praya do Flamengo, Bota-fogo, São Christovão and Mata-porcos, whose salt waters lave the posterior part of Cidade Nova—New Town. Besides, Rio de Janeiro is at greater or less distances, inclosed by colossal mountains, in form of a half circle. These mountains from the base to the summit, are covered with a thick and majestic vegetation. While they afford an agreeable sight to the eye, they form and accumulate around themselves, dense black clouds, which afterwards discharge themselves impetuously over the city, particularly at the end of spring and autumn. These are the causes to which we may attribute the intermittent element, which is more or less present in all diseases.

"But, the existence of numerous pools, which are seen in the suburbs of the city, and even in the middle of some of the streets, are an active cause, and incontestibly the most powerful one, for the frequent presence of intermittent fevers in Rio de Janeiro. The stagnant waters of these pools, not only keep up the humidity in their neighbourhood, but render the atmosphere more unhealthy in consequence of noxious exhalations from the surface, or from mud retained at the bottom."

After preliminary evacuations, Dr. Imbert prescribes the Sulphate of Quinine, in doses of from 8 to 12 grains for adults, and from 2 to 6 grains

14*

for children, according to their age. The dose is not always the same. If 8 or 12 grains be prescribed, the first dose should be one half, that is, 4 or or 6 grains; the second, of one or two grains, and so diminishing, leaving an interval of half an hour between the doses, the last one preceding the expected paroxysm one or two hours. Complete apyrexia must have taken place before the medicine be given.

Chapters 8th and 9th, treat of Scurvy and Worms; chapter 10th, of Venereal diseases, which he treats on the mercurial plan, and 11th, Gonorrhœa.

"Gonorrhœa is a local affection. In the commencement, when there is inflammation, pain and swelling, the patient should take freely of lemonade, or infusion of mallows, with twenty or thirty grains of the nitras potassæ, dissolved in each bottle; leeches should be applied to the perineum, and the scrotum should be enveloped in a flax-seed poultice. To these means should be added rest, light diet, local and emollient bathing and mild enemata; a well adapted suspensory bandage should be worn. After the inflammation has subsided in a degree, the diet may be less rigorous, but the bathing and drink should be still persevered in. At this time, injections of infus. sem. lini., or of the root of marsh-mallows, should be used two or three times daily. When the intensity of the inflammation has subsided, to each eight ounces of injection should be added an ounce of Catalonia wine;—the quantity of wine to be daily increased, and that of the infusion proportionally decreased, until the injection comes to be of pure wine—and if necessary, brandy may be then added.

"It is hardly necessary to say, that during the treatment the patient should abstain from *coffee*, stimulating drinks, &c.

"When it becomes gleet, bals. copaib. in doses of fifteen drops, night and morning, which may be increased to fifty or sixty drops. This plan, in our hands, has never failed to effect a cure, in from twenty to thirty days."

Chapters 12th and 13th, treat of Scrofula and Venereal Ophthalmia; Chapter 14th, of Obstruction of the Testicles; 15th, of Carbuncle; 16th, of Ascites, and 17th, of Hydrocele, or "Dropsy of the Scrotum," which is very common.

"The great numbers, both of blacks and whites, affected with this disease in Brazil, leads one to suppose at first sight, that it is endemic. Yet such is not the fact, for hydrocele is a disease of all countries, with the difference of being more frequent in Brazil, where it is more favoured by some cause, than in other places. This cause seems to us to be recognised in the heat and moisture which operate equally upon all; negroes suffer more from their want of cleanliness, their mode of life, and particularly their filthy habits."

This disease is met with every where in the streets of Rio de Janeiro— in some cases the scrotum extends to the knees, and I am informed by a friend, that in former years, it was by no means uncommon to see men carrying their scrotal tumors, before them in wheel-barrows.

Chapter 18th, treats of the Yaws, and 19th of Varix, to which negroes are peculiarly obnoxious. Chapters 20 and 21, treat of Hydrophobia and Gastritis.

Chapter 22nd, treats of Hepatitis, which is more common between the tropics than elsewhere, and it is more frequent amongst negroes than whites.

"The treatment of acute hepatitis is based upon almost certain principles. Leeches and cups locally applied are to be preferred to general bleeding. Leeches are to be applied to the anus, if the patient suffer from painful hæmorrhoids. Hot fomentations to the abdomen, cool drinks, &c. are to be freely employed.

"English physicians place great reliance on the use of calomel in this disease, and almost always prescribe it soon after the invasion of hepatitis. No doubt but the results justify the preference they give to this medicine, or it would have

been long since abandoned. Perhaps they may know some superior manner of preparing it. Be that as it may, we confess, in good faith, that we do not partake of their enthusiasm in respect to calomel, and we dare not prescribe it, except at the close of the disease, and then, rather as an alterant than a purgative, because it appears to us, that it ought to produce nervous tremors, irritating the nervous papillæ spread over the mucous membrane of the intestines, and develope the inflammatory spots.   We feel inclined to recommend the bland laxatives in preference."

Dr. Imbert recommends calomel in the treatment of chronic hepatitis, but he feels disposed to use rhubarb in preference. He prescribes it in cold infusion. Two or three drachms of the root, coarsely powdered, are infused in a cup of cold water over night, and, after straining, is taken by the patient in the morning. This is repeated several times, with an interval of one or two days.

Chapter 25th treats of Tussis Convulsiva; 26th, of Rheumatism; 27th, of Sciatica; 28th, of Colics; 29th, of diseases of the skin; 30th, of poisoning, which, it seems, is frequently practised by slaves on their masters; 31st, of Asphyxia; 32nd, of Surgical diseases, and 33d, of diseases of women. Under the section, treating of parturition, it is stated, that the negresses cut the umbilical cord very long, and dress it with pepper, and foment it with Ol. Ricini, or other irritating substance, and then bind it so tight against the abdomen, as to cause inflammation, called in Brazil, "Mal de sete dias,"— seven-day evil—which costs the lives of a great number of infants. Dr. I——, farther tells us, that in order to preserve their comely looks, the negresses are in the habit of resorting to means of procuring abortion, under the impression, that pregnancy and its consequences are fatal to their attractions, for the other sex.

The fourth section of this chapter is occupied with the consideration of Leucorrhœa.

"To judge from the great number of maids and married women in Brazil, and chiefly in the large cities, who suffer from 'flores brancas'—white flowers—we naturally inquire whether there is any special cause, inherent in the locality or dependent on the mode of living, which produces and maintains this annoyance which so much afflicts those ladies who are attacked by it? There appears to be no difficulty in the solution of this question; let us see whether we cannot solve it in a satisfactory manner.

"Cast your eyes around and examine, particularly in cities, the women who surround you, and you will be arrested to admire their splendid air, the gracefulness of their motions, the lightness of their step, the regularity of their features, the whiteness of their skin, the beauty of their hair, and the delicacy of their cincture. But, at the same time, you will remark, that the want of those rosy colours which animate and enhance the expression of the countenance, deprives them of perfection of face. This fact, observation has canonized, and which we must attribute on one side, to the circumstance, that, from their organization, women have, as we have observed before, a more decided tendency to the lymphatic temperament than men; and on the other, to the fact that the influence of a hot and humid climate augments still more this organic tendency; now, if the lymphatic temperament causes, as in fact, it does, softness of the flesh, paleness of the skin, and weakness of the muscles, we may then trace the effects to the cause, and consequently admit that Brazilian ladies cannot enjoy those fine colours which usually animate Europeans. The beauty of the former and of the latter has nothing in common as respects the rosy colours of the face; they must always differ, one from the other. European ladies are remarkable for the fine lively colours which beautify their face, for the brilliance and fire of their eyes, for the vivacity of their movements, for the boldness of their character, for their pretty and jovial frivolity, and for their interesting affectation. What distinguishes Brazilian

ladies, is a milder expression of countenance, a more delicate complexion, eyes, in which there is a lazy voluptuousness, which do not, however, inspire lasting love at a single glance; timid looks, which make one guess the sentiments which stir the heart, yet without declaring them; finally, a certain languid tendency to quietude, which is not destitute of charms, but, on the contrary, is often a powerful means of attraction.

"The influence which the climate of South America exercises over the complexion of females is so positive, (not that all conform to it), that it acts not only upon those born here, but also upon foreigners, after they have resided some time in Brazil. In fact, observe those European ladies when they land, in whose face you behold the soft harmony between the rose and lily, who, from being few in the empire, become more charming; if you should see them in a year or two afterwards you will be astonished at the change which the climate has effected in them. Entirely, or in part, these colours have disappeared. What remains of these beauties, is the remembrance, accompanied by a longing for those they possessed and lost, and also by a hope of one day recuperating them in their own country.

"Yet, the influence of climate is not the only cause operating on the temperament of the females of Brazil, giving them that constitution which disposes them by degrees to leucorrhœa. Other causes, not less important, contribute to this end, and we must avail ourselves of them, to establish conclusions which explain the frequency of this disease.

"In the first place, let us ask the question—is it not true, that females live very retired in Brazil, and take very little exercise, either in consequence of the heat which, constantly prevailing, obliges them to avoid motion, or in consequence of ancient and inveterate prejudice, (that will only disappear with time), which inhibits them from appearing frequently in public, and thereby deprives them of salutary exercise? Admit our proposition, and we have every reason to expect it, it necessarily follows, that this sedentary life, this life of quietude and indolence, which exercises so baneful an influence upon the mind and heart, augments the natural debility of the body, renders digestion languid, and deprives the female of the beneficial action of the solar rays, as well as of the respiration of the open air, which is not less important.

"For the inhabitants of Brazil, tea is an article of prime necessity, and we believe they excessively abuse the use of it. In fact, not a day passes but they take five or six cups of this infusion, and increasing in strength, with a view of making it more sapid—'But tea is now with us a social necessity'—is not this what you say to me, fair Brazilians? But, permit me to reply, that this relaxing beverage is seriously injurious to your health; and, since it is those who are most afflicted with leucorrhœa, that take it to its excessive use, you may probably attribute the origin and persistence of this disease.

"Without stopping for other considerations, drawn from the usages and customs of the country, which, were it necessary, would serve to corroborate the opinion we have just expressed relative to this complaint, we declare it to be an established fact, that 'Flores Brancas,' or Leucorrhœa, is a very common disease in Brazil."

Chapter 34th treats, in several sections, of the most common diseases of children; the 35th, of external remedies, as leeching, cupping, blistering, &c.; the 36th, is a medical formulary, and the work concludes with the 37th chapter, which contains some judicious remarks upon the preservation of slaves, and the conducting of large plantations in the country.

W. S. R.

Art. XVI. *An Inquiry into the Nature of Sleep and Death, with a view to ascertain the more immediate causes of death, and the better regulation of the means of obviating them.* Republished by permission of the president and council of the Royal Society, from the Philosophical Transactions for 1827, 29, 31, 33, and 34: being the concluding part of the author's experimental inquiry into the laws of the vital functions. By A. P. W. Philip, M. D., F. R. S., L. & E. 8vo, pp. 254. London, 1834.

This is almost wholly a republication of seven of the author's papers, published originally in the Transactions of the Royal Society of London; only two of which, the last, have an immediate reference to the chief subjects of the title. The *first* is "on the functions of the nervous system, and the relation which they bear to the other vital functions;" the *second* consists of "some observations on the effects of dividing the nerves of the lungs, and subjecting them to the influence of voltaic electricity;" the *third* is devoted to "Some observations relating to the function of digestion:" the *fourth* is "on the sources and nature of the powers of circulation:" and the *fifth* "on the relation which subsists between the nervous and muscular systems in the more perfect animals, and the nature of the influence by which it is maintained." On the subjects of all these papers the views of Dr. Philip have been long known. They could not fail, indeed, to be impressed upon the memory, from the variety of shapes in which they have been presented to the reader; their clearness is, however, by no means enhanced by the repeated references which he makes to other of his contributions to science.

From a review of all the facts contained in his paper on sleep, the author arrives at the following conclusions:—

"1. That in the brain and spinal marrows alone reside the active parts of the nervous system.

"2. That the law of excitement in the parts of these organs, which are associated with the nerves of sensation and voluntary motion, is uniform excitement followed by proportional exhaustion, which, when it takes place to such a degree as to suspend their usual functions, constitutes sleep; all degrees of exhaustion which do not extend beyond them and the parts associated with them, being consistent with health.

"3. That the law of excitement in those parts of the brain and spinal marrow which are associated with the vital nerves is also uniform excitement, but which is only, when excessive, followed by any degree of exhaustion, no degree of which is consistent with health.

"4. That the vital, in no degree partaking of the exhaustion of the sensitive system in sleep, only appears to do so from the influence of the latter on the function of respiration, the only vital function in which these systems co-operate; in consequence of which its organs, without being in any degree debilitated, are less readily excited.

"5. That the law of excitement of the muscular fibre, with which both the vital and sensitive parts of the brain and spinal marrow are associated, is interrupted excitement, which, like the excitement of the vital parts of these organs, is only, when expressive, followed by any degree of exhaustion; and

"6. That the nature of the muscular fibre is every where the same, the apparent differences in the nature of the muscles of voluntary and involuntary motion depending on the differences of their functions, of their relation to the brain and spinal marrow, and of the circumstances in which they are placed." p. 150.

The peculiarities of dreaming, Dr. Philip ascribes to the partial operation of the causes of disturbance, and some of the sensitive parts of the brain being capable of excitement without disturbing the others: "and thus

it is that the more near we are to awaking, the more rational our dreams become, all parts of the brain beginning to partake of the excitement; which has given rise to the adage, that morning dreams are true."

In a preceding paragraph he observes, that when we awake we are conversing, and are thus obliged to employ words, the usual incongruities of dreaming do not occur. The ideas are sufficiently detailed to enable us to correct the suggestions of the imagination. "No man," he says, "ever dreamt that he was telling another that he had been flying through the air:" —in which the author is assuredly in error. It has happened to us to do this very thing, that no man ever did do; and every inveterate dreamer could give instances in opposition to the conclusions of Dr. Philip.

In his last paper, Dr. Philip divides the forms of death into five classes. In the first, he places the only *natural death*, that from old age, where all the powers of life, in consequence of the operation of the agents, which excite their organs, gradually decline, and death is only the last sleep, characterized by no peculiarity, in which these powers, partly from their own decay, and partly from the lessened sensibility increasing the difficulty of restoring the sensitive system, become incapable of this office, in consequence of which the individual awakes no more.

Secondly. The death which he considers to resemble most nearly that from old age is that from excessive exhaustion of the sensitive system, "from the operation of stimulants of greater power than this system can bear, notwithstanding the intervals of such imperfect repose as their continued operation admit of, without the supervention of disease; which, not being capable of relief from the continued action of the vital parts of the brain and spinal marrow, by sympathy spreads to them, the affection of each system increasing that of the other, till all the powers of the sensitive system are destroyed."

Thirdly. The death, in which disease of the sensitive system arises, not from causes over exciting, but directly debilitating it, the debility which they induce being of the same nature with that from excessive excitement, and running the same course as in the second stage of the preceding form.

Fourthly. The death which arises from the privation of the natural stimulants of the organs of life: and

Fifthly. That which arises from diseased states of those organs, analogous to the states produced in the organs of the sensitive system by the causes which make their impression on them. p. 226.

"If," says the author, "the foregoing include all the modes of decay, the physiological nature of death, in its various forms, is referable to very simple principles. In the natural decay, the excitability of the organs of both the sensitive and vital systems is gradually impaired by stimulants, which, whether existing within our bodies, or making their impression from without, belong to inanimate nature: for it is by the impression of such stimulants alone that the functions of life are maintained. In the different kinds of violent death, with the exception of the death which arises from a failure of the natural stimulants of the vital organs, which is comparatively rare, and extremely simple in its nature, we find the excitability of one or both of these systems, or some parts of one or both of them, capable of influencing all the others, more quickly destroyed by the continued operation of causes which either stimulate beyond the limits of health, or applied beyond the limits of their stimulant operation, destroy the powers of life, either by directly destroying the powers of the sensitive system, or depriving it of those powers by which it is maintained. All these causes, it is evident, tend to the same effect; the extinction of the sensibility, which constitutes death ac-

cording to the common acceptation of the term, the immediate cause of which, therefore, exists in the sensitive parts of the brain and spinal marrow." p. 228.

In another passage, Dr. Philip remarks, that the last feelings, in natural death, are necessarily of the same nature as those that precede sleep. It is only when the course of our decay is disturbed, that suffering of any kind attends it. It appears to us, however, that, physiologically speaking, the difference between sleep and death is sufficiently appreciable. During sleep a process of renovation is going on in the organs of animal life, which adapts them for subsequent activity, and contrasts signally with the annihilation of the functions that constitute death; hence the marked difference between healthy sleep, and the state of coma or stupor induced by a morbid cause, from which the patient is aroused languid and exhausted, instead of active and recruited. The idea of the intense suffering immediately preceding dissolution is, and has been, so general, that the term "Agony" has been applied to it in many languages. In its origin, the word means nothing more than a violent contest or strife, but it has been extended so as to embrace the pangs of death and any violent pain. The agony of death, however, physiologically speaking, instead of being a state of mental and corporeal turmoil and anguish, is one of insensibility. The hurried and laboured breathing, the peculiar sound on inspiration, and the turned up eye-ball, instead of being evidences of suffering, are now admitted to be signs of the brain having lost all, or almost all, sensibility to impressions. Whilst the brain is possessed of consciousness, the eye is directed as the will commands, by the appropriate voluntary muscles of the organ; but as soon as consciousness is lost, and the will no longer acts, the eye-ball is drawn up involuntarily under the upper eye-lid. All the indications, then, of mortal strife are such in appearance only: even the convulsive agitations, occasionally perceived, are of the nature of the epileptic spasms, which we know to be produced in total insensibility, and to afford no real evidence of corporeal suffering. An easy death—euthanasia—is what all desire; and, fortunately, whatever may have been the previous pangs, the closing scene in most ailments, is generally of this character. In the beautiful mythology of the ancients, Death was the daughter of Night, and the sister of Sleep. She was the only divinity to whom no sacrifice was made, because it was felt that no human interference could arrest her arm: yet her approach was contemplated without any physical apprehension. The representation of Death, as a skeleton covered merely with skin, on the monument at Cannæ, was not the common allegorical picture of the period. It was generally depicted on tombs as a friendly genius, holding a wreath in his hand, with an inverted torch;—as a sleeping child, winged, with an inverted torch resting on his wreath; or as Love, with a melancholy air, his legs crossed, leaning on an inverted torch,—the inverted torch being a beautiful emblem of the gradual self-extinguishment of the vital flame.

The disgusting representations of Death from the contents of the charnel-house were not common until the austerity of the 14th century, and are beginning to be abandoned. In more recent times, Death seems to have been portrayed as a beautiful youth; and it is under this form that he is represented by Canova, on the monument which George the IV. of England erected in St. Peter's at Rome, in honour of the Stuarts.   R. D.

ART. XXI. *Philosophie de l'Histoire Naturelle ou Phénomènes de l'Organisation des Animaux et des Végétaux.* Par J. J. VIREY, Docteur en Médecine de la Faculté de Paris, et Membre titulaire de l'Académie Royale de Médecine, &c. &c. In nova fert animus.—OVID. Paris, 1835. 8vo, pp. 512.

Philosophy of Natural History, or Phenomena of the Organization of Animals and Vegetables. By J. J. VIREY, Doctor of Medicine of the Faculty of Paris, &c. &c.

The author of the "Philosophy" has been long known as one of the most prolific writers of the times. An active and useful member of the *Société de Pharmacie* of Paris—busily engaged, too, in the exercise of his calling, he has yet found time and inclination to discuss voluminously, and at the same time, most fancifully, many interesting and intricate points of anthropology. Early in his career of authorship, he selected moral rather than physical man for the object of his investigations; but, of late, his inclinations appear to have led him more to the cultivation of the natural sciences. Seven and twenty years ago, he published a treatise in two volumes "On the Art of improving Man;"—in 1817, "Medico-philosophical Researches on the Nature and Faculties of Man," in one volume;—in 1820, a "Natural History of Medicines, Aliments, and Poisons," in one volume;—in 1822, a "History of the Manners and Instinct of Animals," in three volumes;—in 1823, a volume "on the Vital Power;"—in 1824, his "Natural History of Mankind," in three volumes;—in 1825, a second edition of his work on "Woman," in one volume;—in 1830, the second edition of his "Philosophical Hygiéné;"—in 1833, the third edition of "Treatise on Pharmacy," in two volumes;—and, lastly, the work before us. Besides these separate publications, the pages of the "*Nouveau Dictionnaire d'Histoire Naturelle*," of the "*Dictionnaire des Sciences Medicales*," and of many of the periodicals of the day, contain numerous evidences of the author's industry and zeal in the cultivation of his profession. Every thing that emanates from him indicates research, and almost all exhibit vivid, we might perhaps say, boundless imagination. The predominance, indeed, of the latter quality detracts largely from the value of most of his productions, and has acquired him the character, with some, of being the most fanciful of anthropological speculators.

The work before us is divided into four books; the first of which is entitled "General Physiology, or Principles of Organization, animal and vegetable:"—the second is on "the origin and formation of beings as regards their destruction;"—the third, on the "developements of organic forms and their functions;"—and the fourth on the "reproduction of beings, animal and vegetable."

In respect to the theory of the formation of living bodies, M. Virey is a decided *univocalist*. All philosophers are so, as regards the beings highest up in the scale; but many distinguished naturalists, amongst whom may be mentioned De Lamarck, Raspail, Treviranus, Burdach, Gruithuisen, and Wrisberg, conceive it probable that spontaneous or equivocal generation may occur in the lowest divisions of living bodies.

M. Virey, however, considers, that facts, gradually developed in the wonderful progress of the natural and anatomical sciences, are sufficient to annihilate "the monstrous hypothesis of the spontaneous life of matter, and the pretended formation of organized beings, by blind inorganic substances." p. 30.

His views on the difference between organized and inorganic bodies are singularly fantastic, and often by no means intelligible. Witness the following extract:

"Different progressive degrees of animation may be observed in organic substances. First a simple gelatinous liquid offers the first framework of all organization. Subsequently, an albuminous substance, susceptible of concretion, passes successively to the form of the more or less solid tissues. The fibre constitutes the more or less hard wood of vegetables, or the muscular flesh of animals. Lastly, the nervous pulp contains, during life, the most striking excitative faculties of the whole economy.

"These four principal elements, *gelatine, albumen, fibrine, and nervine,* enjoy properties more or less active, as contractility, which is the attribute (*apanage*) of the muscular fibre, and sensibility, with which the medulla of the nervous cords is endowed. The substance, composing the muscular fibre, and the neurilemma, (the membrane enveloping the nervous element,) are more soluble in acids than in alkalies. The nervine or pulp of the nerves is soluble in alkalies, and not in acids. The contained is thus found in a state opposite to that of the containing. The latter is the anelectric (*cohibant*) of the former: their reciprocal polarity is therefore contrary or inverse."

"Moreover, there is a great analogy in composition between the nervine and the seminal matter of animals. Both hold phosphorus in combination, a very energetic agent of stimulation on the other living parts, a principle eminently combustible, or the most opposed to the burnt (*carburé*) and heveral state." p. 43.

In its general character the work before us is liable to all the objections that apply to M. Virey's works in general. Perhaps, indeed, there is a greater admixture of obscure psychology, or what he would doubtless term "philosophy," in the present than in his preceding publications. Of this we have a signal example in what he calls his "Terminal Propositions," which conclude the text of the work, and embody, as it were, his leading principles of organization.

"1. Is the Divinity the *intellectual principle,* the *vital force* of the world, (in the universal encephalon,*) analogous to the nervous fluid, or to the celestial Ether?"

"2. Is nature like the general nervous apparatus, distributing to all parts of the spheres movement and life, for the organization and developement of animal and vegetable beings?"

"3. Are the masses, called inorganic and anorganic, materials constituting the different bodies which compose the worlds, either in the permanent mineral and chemical condition, or in the transitory condition of organization, through the influence of the vivifying principle?"

"4. Do organized beings, in their individual and transitory existence, emanate as temporary productions from the great tree of life?"

"5. Is each of its different branches or stocks of species attached to a common trunk by paternal connexions, in their genera and families, according to the general law of life, reproduction, and destruction?"

"6. Do all animated species (without excepting the human race, terminal or regulating (*terminale ou regulatrice,*) on our planet) undergo, like *their individuals,* the law of developement, increase, vigour, and multiplication, and afterwards of old age and death, to accomplish the orbit of transformations or modifications in accordance with those of the star that nourishes, and causes them to expand and fructify?"

"7. Do not all the organized beings of our world aspire by successive developement, and by a more and more complicated evolution, to rise progressively towards the pinnacle of perfection, in order to approach the organism of man? The vegetable, which is at first the most imperfect, tends to attain a higher rank from its birth and to its complete developement, as man from the primitive embryonic point (infusory animalcule?) runs through all the steps of the zoonomic

* "Sensorium universale, of Isaac Newton and of Samuel Clarke.

scale.* That which happens to each individual, from conception to complete developement, takes place in the species constituting the parallel threads of the vegetable and animal kingdom."

"8. Are the *human race*, and the other *animal and vegetable species*, subordinated in their reciprocal harmonies, or dependent (*pondérées*) upon each other, according to their forms and instincts of life, whilst *minerals* are subjected to mechanical and chemical law? The latter can only obey physical necessities. The more other bodies enjoy of spontaneity in their mobility and sensibility, the farther extends the circle of their attributions. Lastly, the human race deploys over the inferior beings, and over its own race, providential acts of the creative power, of which it becomes the minister over this globe."

"9. Circumscribed within the limits of his organization, *civilized* MAN can only act with a liberty restricted within the sphere of his destinies, although one less restricted than that of the instincts of other animals. He pursues the course prescribed by the supreme Arbiter, without being able to overstep it—any more than every other creature, according to his constitution and intellectual rank in the general order of the universe?" R. D.

———

ART. XXII. *A further inquiry concerning Constitutional Irritation, and the Pathology of the Nervous System.* By BENJAMIN TRAVERS, F. R. S. Senior Surgeon to St. Thomas's Hospital, &c. &c. &c. London, 1835. 8vo, pp. 444.

It will be remembered, that in the year 1826, Mr. Travers published a work upon constitutional irritation. The present essay is a continuation of the same subject. The former treatise has been so long before the profession, that students of the general pathology of external diseases, are, or should be familiar with its merits. The name and reputation of Mr. Travers will secure, for any of the labours of his pen, an attentive perusal, for the pathology of several injuries and local diseases, have been very successfully illustrated by him on former occasions. But we must be permitted to state, that theorizing upon an extended scale, or the philosophical analyzation of complex and multiform questions does not appear to be the fort of this author. In the treatise before us, he objects almost in the commencement against the attempt to define with accuracy, such general terms as are used to designate the several temperaments, diatheses, &c.; things that Mr. Travers thinks that all can comprehend or recognise at sight, but which cannot be described. Now, these are precisely the classes of terms that most require definition, in all philosophical treatises—because they express the broadest, and therefore the most vague generalizations. Temperaments run into each other, and scarce ever exist in simplicity in any individual, and therefore, by Mr. Travers's rule, it is in vain to define them. Yet he does not object to the employment of the terms which designate the different temperaments! A distinguished French naturalist once declared that there existed no such things as species, yet he has described the types and representatives of numerous groups of individuals, under the title of species, to the infinite advantage of natural science. Nor is there any thing inconsistent in this procedure. There is an unbroken sheet of water between this place and London, and it is a great way to London!—but the extent of meaning attached by different persons to the phrase "a great way," and if we

---

Monstrosities are *infra-formations*, but irregular, either totally or partially, and so of imperfections.

wish to convey 'to others an idea of the distance mentioned, surely we shall find some utility in the metaphysical abstraction, which introduced the division of the sphere, by degrees of latitude and longitude. An abstraction rendering possible a clear definition of distance. If the student of geography have no accurate notion of the whole surface of a country, how can he comprehend the position of its several parts?

We perceive in many portions of this work, the ill effects of this neglect of definition; but without descending into particulars, it may be noticed, that though the treatise dwells expressly upon "constitutional irritation," we have been unable to arrive at any very certain conclusion as to the precise meaning attached by the author to the word constitutional.

When it is added, that the style is by no means clear, that many of the cases are far from being drawn up with sufficient detail, and that some of the important phrases are such as we are unable, fully to comprehend, the disagreeable portion of our task is ended, and we feel great pleasure in recommending the work to the students of surgical pathology, for many useful hints and cases. The second part, which treats of the pathology of the nervous system, is perhaps the most valuable portion of the essay.

<div align="right">R. C.</div>

ART. XXIII. *Practical Observations on Diseases of the Heart, Lungs, Stomach, Liver, &c., occasioned by Spinal Irritation; and on the Nervous System in general, as a source of organic disease. Illustrated by Cases.* By JOHN MARSHALL, M. D. London, 1835, 8vo, pp. 172.

The subject of the present work is one of uncommon interest, the lesions, namely, of the nervous system, more especially of its ganglionic portion, and the morbid phenomena thence resulting. This branch of pathology has not certainly received from the medical profession that degree of attention which it demands, and hence every new accession of well authenticated facts in relation to it, is of importance, by leading us to a better acquaintance with the true character of various abnormal conditions of the animal functions, and enabling us the more readily and certainly to direct our remedial measures for their prevention and removal.

That many of those groups of symptoms which seem to indicate a very considerable deviation from the normal condition of the heart, lungs, stomach and other viscera, are produced solely by an irritation of some portion of the nervous system, independent of any apparent disease of the organ, the derangement in the functions of which gives rise to the leading morbid phenomena, is rendered evident by the fact, that when, by our remedies, we are enabled to remove the nervous irritation, all the symptoms of organic disease promptly disappear.

The true pathology of this class of affections has, until within a very late period, been in a great measure overlooked, and its investigation still presents a field well adapted to repay the labours of the industrious investigator. The only danger we apprehend, is, that when the attention of medical men shall be more generally directed to the morbid phenomena under consideration, they will forget, as is too often the case when a new source of diseased action is first pointed out, that nervous irritation consti-

tutes only one and not the sole cause of deranged or morbid actions; and that, in too many instances, remedies will be directed entirely to a part of the body unaffected with disease, instead of to the organ which is actually its seat.

The work of Dr. Marshall, although it has but slight claims to elegance or even correctness of style, and notwithstanding the pathological views it has been written to establish, are not always very clearly expressed, nor even, in many particulars, perfectly intelligible, is nevertheless valuable in consequence of the numerous facts and practical observations which it contains.

The proposition which the author assumes as the foundation of all his reasoning, is—

"That many diseases which we have been in the habit of calling idiopathic, meaning, by this term, that they originate and have their causes in the organ where they are developed, may not only be *simulated* by nervous irritation or debility, but that that nervous irritation or debility, continued, will, of itself, cause structural disease and disorganization at the extremities of the nerves so affected."

"What I more particularly contend for," he remarks, "is this—that irritation or debility, consequent upon irritation of the nerves, at their origin or ganglionic junctions, will, in time, and occasionally in a very short time, produce actual disease of the organs dependent upon these nerves for vital energy. Whereas, this disease might have been completely prevented, or a speedy cure effected, by active treatment timeously applied to the seat of morbid action. And I hold that this is more particularly the case with the nerves which ramify upon the vascular system and larger viscera."

Dr. Marshall presents in detail the history of two cases of aneurism of the aorta, eight of disease of the heart, six of phthisis, two of asthma, three of diseased liver, four of dyspepsia, one of cramp in the stomach, one of diabetes, five of tabes mesenterica, three of chorea, and six of anomalous disease, all of which he conceives to have been produced and kept up by nervous or spinal irritation.

"It has been," he contends, "too much the fashion to consider the vascular system as the *arcanum vitæ*, and the nervous system as a subordinate agent in the human economy. A blind adherence to this theory has cramped and misled some of our most celebrated practitioners. As far as my own observation and investigations lead, I am decidedly inclined to attribute the superiority of agency and importance to the nervous system.

"I scarcely see how it can be denied that the vascular is the subordinate, since to the nervous alone it is indebted for energy and vitality, and without it would be no more than a watch without a spring—a beautiful but useless piece of mechanism."—"It is sufficient for my present purpose to consider the two systems as agents perfectly equal in their dependence upon each other, and so intimately united in their functions, that the slightest derangement in the one cannot exist without more or less exciting morbid action in the other; and it often happens that this, by reacting upon the primary derangement, increases it in a very high degree. This view leads me to consider nervous debility as the most frequent if not sole cause of vascular turgescence."

The latter part of the foregoing sentence is so obscurely worded, that it is difficult to understand the real meaning of the author.

"Vascular energy," he adds, "is wholly derived from the nervous system. If, by any means, the nerves destined to supply any vessel, or set of vessels, with this energy, become debilitated or destroyed, then these vessels cease to be capable of propelling the fluids to and from the heart; and, therefore, it inevitably follows that turgescence, more or less severe, takes place, and results in disease, depending upon the organ affected for its particular character. Thus, a sudden

temporary suspension of nervous energy in the vessels of the brain, rendering them for the moment incapable of propelling forward the blood, may occasion giddiness, dimness or distortion of vision, loss or faltering of speech, and all the other well known symptoms of approaching apoplexy: and if these symptoms are neglected, this temporary becomes a lasting loss of energy, producing either immediate death, or a total suspension of vital power in the parts dependent upon the debilitated nerves."

We select a sentence or two from the concluding observations of Dr. Marshall, in order to give to our readers a tolerably full exposition of the pathological views advanced by him.

"That convulsions in children," he remarks, "frequently have their origin in dentition or worms, in acid or crudities, existing in the stomach and bowels, causing irritation of the nerves ramified upon these viscera, is most true; but it is not the less true, that *through the medium of the nerves alone the convulsions are produced:* and it therefore follows, that while we endeavour to clear away the offending causes, we must no less assiduously attend to restore the offending nerves to a healthy tone. But very many cases come under our notice, where none of the forementioned causes are found to be in existence, and yet the convulsive attacks are, in these cases, more intractable and more frequently fatal than in the other! And here I venture to assert, most fearlessly, that, in such cases, examination or experiment will prove the morbific influence to exist at the roots of the spinal nerves, or in the ganglionic system; and that if it has not existed so long as to occasion, by its reaction on the brain, any structural disease there, it will uniformly be found to yield to a patient application of remedies, such as are suggested in the foregoing pages."

"There can be nothing more certain," Dr. M. further remarks, "than that morbid action in the medulla or spinal nerves, reacts upon the brain, to the production of delirium, mania, and structural disorganization; and it surely needs no argument to prove what an important light this fact, once fully ascertained, throws upon the pathology and treatment of mental maladies. In all the three cases of chorea which I have given, the brain was evidently affected; in the two latter, it was so in a very high degree. In the second, the patient wore, for many weeks, all the characteristics of furious mania. Yet, no sooner were the spinal and sympathetic nerves relieved from morbific influence, than the irritation of the brain subsided in the same ratio, and the patient perfectly recovered her senses, and all her mental powers. And let it be remembered, that, previous to this, the curative treatment had been directed to the head itself, without any good effect whatever. Were the state of the spinal and sympathetic nerves more anxiously investigated, than has hitherto been the practice, at the commencement of mental maladies, I am much inclined to think, and I speak from experience when I venture to hint that there would be fewer 'incurable' cases found in our lunatic asylums."

Dr. Marshall anticipates, that, as our knowledge advances, it will be proved that not only epilepsy, but hydrophobia, and all diseases of this class, arise primarily from spinal irritation; and that, with the exception of those cases in which, either from malformation, injury of the skull, &c., the brain becomes the immediate seat of structural disease, that organ is only secondarily affected, especially in the earlier stages of the malady. "I have no hesitation in stating my opinion," he remarks, "that in all cases of epilepsy, where the aura epileptica occurs, the medulla spinalis will be found the seat of irritation."

Dr. M. points to two prevalent errors, adherence to which proves a most serious impediment to a proper understanding and full reception of the pathological views which he has attempted to establish.

"The one is the persuasion or assumption, that, in *all* cases having their origin in spinal irritation, the medulla spinalis will, on *post-mortem* examination, exhibit such morbid appearances as to account for the phenomena developed during life.

15*

This idea I have combatted so much at large in the earlier part of this work," he remarks, "that I need scarcely allude further to it here. Wherever the medulla is the SEAT of the disease developed, as in epilepsy, tetanus or chorea, I should expect to find some lesion of it; but where irritation of it or the nerves has occasioned structural disease elsewhere, I am inclined to think the morbid appearances in it will, for the most part, be invisible to our senses. There can be no doubt that closer attention to its structure, and the very beautiful discoveries now made in its minute anatomy, will lead us to recognise as morbid many appearances to which, hitherto, little importance has been attached.

"Another false idea, or what my experience led me to consider as such, is, that nervous irritation or debility, never can, or does, exist in such a degree as to occasion the symptoms of organic disease, without obvious derangement in the column or tenderness to touch over it, and in the neighbouring parts, being present. With the discoveries of Bell and Bellengeri, alone, before us, this assertion is quite untenable; but no less does experience contradict it.

"In several of the most serious of the foregoing cases, these symptoms most decidedly were absent, yet the mode by which a cure was at last accomplished, proved, beyond all dispute, that in the nervous system alone, and that as more immediately connected with the spine, the cause of the morbid phenomena had existed."

The introductory remarks to the cases of disease of the heart and large blood-vessels, simulated by nervous irritation, are particularly interesting, and deserve the close attention of the practitioner. Their length will not permit us, however, to insert them here.

Under the head of diseases of the lungs, occasioned by nervous irritation, Dr. M. states, that it is his opinion, derived from practical observations, that the original seat of the morbid action in phthisis pulmonalis, is in the nervous system.

"I have," he remarks, "already adverted to the undeniable fact, that it is from the nervous system alone the vascular derives the vital energy by which it performs its functions, and that hence debility or irritation at the root or in the course of a nerve, or set of nerves, must inevitably produce morbid action in the tissues on which they are ramified; whether that be the heart and blood-vessels, the lymphatics, absorbents, or any of the viscera, the effect will be the same, though the particular character of the disease developed will depend upon the seat of it, as well as upon many collateral circumstances. When a vessel, larger or smaller, is deprived of the power by which it performs its functions, it must become either turgescent or collapsed—most commonly the former—and as it is impossible for it quietly to continue in this state, congestion follows more or less rapidly. If, on the contrary, collapse takes place, the consequences will be very different, but ultimately not less destructive of health and life."

Dr. Marshall does not recollect a single instance in which an individual in the incipient stage of consumption did not mention or readily admit—

"That among the first unpleasant sensations he could recollect, was that of coldness over the whole body, but *more particularly down the back.* Nothing is more common than to hear them compare this to the sensation of cold water suddenly dashed upon the shoulders, or a wet cloth closely applied to them; and the remark follows, that no application of external heat, or even active exercise, tended to remove this sensation; evidently proving that it arose from sudden and serious diminution of nervous energy. If, at this period, nothing is done, and successfully done, to rouse the system, and bring it up to a healthy tone, morbid action in some viscus must be the result; and owing to their peculiarly delicate structure, and varied functions, this too often occurs in the lungs."

"The most minute and laborious researches have, in the present day, been made by various eminent members of our profession, into the nature of the changes and appearances which take place in the lungs after morbid action is fully established in them. In the results of their investigations I find nothing hostile to my opinion, that the producing cause of that morbid action, is deficiency of nervous energy; and that, therefore, until we can restore that energy

we labour in vain to remove the effects produced by its absence; and that if we do succeed in restoring it, the affection of the lungs will disappear synchronically, provided it has not advanced so far as to incapacitate these organs for their office of oxygenating the blood.''

Dr. Marshall does not coincide in the general opinion entertained of the incurability of consumption.

"It must be admitted," he observes, "that when they have become diseased, the lungs have less chance for recovery than any other viscus. Their functions are varied and laborious, their employment absolutely incessant, in addition to which, when ulceration takes place, the continual irritation produced by their constant action, and the contact of the air respired, render the difficulties of a cure serious and manifold. Still it is now too much the fashion with a certain class of our profession, when they find or fancy, by stethoscopic examination of the chest, that lesion of the lungs is present, to condemn the patient to inevitable death, and thenceforth, abandoning all active measures for his recovery, adopt a mere palliative mode of treatment, under which time, never to be regained, is lost, and the patient glides into that incurable stage in which they had at first pronounced him to be."

"The fact is, that where the nervous energy is restored by judicious medical treatment, or by the rebound of a powerful constitution, the efforts which Nature makes to repair the devastations of disease are most truly astonishing. Who is there, in the habit of pursuing morbid anatomy, that is not made aware of this? How often do we find in the lungs of persons who never, during life, complained to us of their respiratory organs, or at least said no more. than that formerly they were liable to bad colds, not only cicatrices indicative of former lesion, but substances varying from the size of a millet seed to that of an egg—some resembling cheese, sometimes chalk, and contained in what evidently had been the sacs of tubercles that had run their course, discharged their contents, and then, in spite of this new deposit, been forcibly closed up by the curative efforts of Nature! And do we not, in all the viscera, meet with similar instances of this wonderful power of adaptation to existing circumstances in the animal economy? Why, then, let me ask, do we resign our patients to 'a palliative treatment,' while a shadow of hope remains, or any plan has been left untried? and, above all, why do we send them to die far from their home and their friends? When that home is by the sea-side, I admit that removal from it is quite necessary; but I will venture to say that no consumptive patient ever yet was saved by being sent out of England who might not have been saved by being kept in it, and judiciously treated."

"In the following cases, it is to be observed, that both in those which ended fatally and those which recovered, very great spinal irritation, and, in some of them, deformity of the column or displacement of some of the vertebræ, was present; and not one case of consumption has come under my care or notice, since my attention was turned to this subject, in which I did not find this symptom."

Dr. Marshall considers, that phlegmasia dolens is another disease of purely nervous origin. He conceives it, however, to be of very rare occurrence, having met with but a very few instances of it in an extensive practice in puerperal cases.

"These, however, were sufficient to convince me, that all the painful and intractable phenomena of the disease were plainly traceable to pressure or other injury of the nerves, either before or during parturition, causing a deficiency of energy in the nerves themselves, and, consequently, languor and inefficiency in the action of the vessels dependent upon them; hence the pain and intumescence of the limb; and, of course, when once intumescence takes place, it *must* react upon the nerves to the increase of all painful and morbid phenomena. In the few instances in which it occurred to me I found leeching at the groin, and over the whole sacral region, and frequent frictions with anodyne and stimulating linements on the sacrum, the groin, and the affected limb, most decidedly beneficial; scarification I never attempted."

We offer no comments upon the views advanced in the work before us.

Our chief aim has been to present, as much as possible in the author's own words, an outline of those deductions which he believes the facts advanced warrant him in drawing, in relation to the pathology of several of the most important diseases which the physician is called upon to treat.

If the views of Dr. M. be correct, they point to a very important modification in our plans of treatment, and to a greater certainty of success in the removal of certain maladies than has followed the curative measures hitherto pursued. To enter upon an examination of those views would demand a careful analysis of the numerous cases adduced in their support, and give to this article an extension altogether incompatible with our present limits. We cannot, however, close our notice of the work of Dr. M. without presenting a general outline of the remedies which he considers to be best adapted to the removal of those affections which are dependent upon nervous irritation.

It is, he conceives, from the result of seventeen years of study and practice, "on the medium of the surface that we must *principally* depend in the cure of nervous debility or irritation."

"In the sulphate of quinine, and the salts of iron, zinc, and copper, as well as the vegetable bitters, combined with alkalies and gentle laxatives, I have found most admirable adjuncts, but never yet did I succeed with them alone in curing any case of nervous or medullary irritation, which had advanced so far as to assume the character of any organic disease."

To remedies which produce "a cuticular irritation, such as blisters, ointment of tartarized antimony, and the ammoniacal and terebinthine linements," he has given the fullest trial, and found them all useful, "each in *their* own way and time," with the exception of the terebinthine, the stimulating properties of which he has found to be more than counter-balanced by their tendency to produce irritation of the kidneys and neck of the bladder. To the antimonial ointment, he remarks, he is by no means partial, yet the cases which he relates, particularly the second and third case of chorea, will show, he observes, that he has occasionally succeeded in "making a cure with it," where both blisters and issues, as well as depletion, had entirely failed.

"There may be two reasons for this: it is generally applied to a much larger surface, and the discharge produced by it is from a perfectly different source and of a different character from that procured by blisters, approaching much more nearly to the nature of pus. The ordinary action of cantharides is confined to the epidermis, while the antimony, penetrating the cutis, exerts its influence more directly upon the nervous and muscular tissues. My objection to its use arises from the capriciousness as well as harshness of its operation; the great and extremely irritating pain which it occasions; and the severe sickness of stomach consequent on its absorption into the system; often producing effects, in a delicate frame, hardly less distressing than the disease it was intended to remove. Moreover, in cases where I have found its application a complete failure, I have succeeded with what, *a priori*, appeared a much less efficient agent. Nor could I ascribe this altogether to idiosyncrasy; it rather seemed to me to arise from some as yet unexplained difference in the nature of nervous disorders."

Dr. M. has employed ammoniacal linements extensively, and with the very best effects; yet they too have occasionally failed; they have, he conceives, this disadvantage, that, in cases where it is not desirable, they irritate the skin and produce an eruption.

"Simple friction, even without any rubefacient, over the seat of the principal nervous centres, and over the whole thorax and abdomen, he has found of very

important service, particularly in the earlier stages of nervous debility. But, to render friction of any use, whether with or without rubefacients, depends entirely on the steadiness of its repetition, as well as on the length of its application. It is not rubbing the spine or the seat of the sympathetic system or the thorax, for a few minutes at a time, and then wholly neglecting it for days or weeks together, that will avail. Friction, to be of any use, must be continued for an hour at a time, at least twice, if not three times each day, so as to prevent the nervous system from losing, in the interval, the impetus given to it; and, if not so practised, it may as well be omitted altogether. Nor even with this attention to the steadiness and frequency of its application must it be expected that the sanitary influence will become immediately evident."

Against the use of mercury, in any of its forms, in the treatment of spinal or nervous irritation, Dr. M. warns the younger members of the profession; so decidedly injurious has he found it, that, at one period, he refrained from prescribing even half a grain of calomel *per diem*. He, however, now readily admits that "where mere functional derangement of the liver or bowels has been produced," a cautious exhibition of the blue pill, alternated with mild laxatives, will be found not only beneficial, but indispensable. Excessive purgation he has always found very decidedly injurious.

On the use of the several mineral waters of Great Britain, and their effects in the treatment of nervous irritation, we shall not follow the author in his remarks.

"Change of air and scene," he observes, "particularly if it be to a very dry atmosphere, is a measure which ought never to be lost sight of in treating cases of nervous or spinal irritation. It is only when a very considerable advance towards a cure has been made, that the sea-side or sea-bathing is advisable. I have always found the greatest benefit accrue from having my patients as much in the open air as their strength will admit. The very utmost care, however, ought to be observed to prevent exercise ever being pushed the length of fatigue; because every time a person labouring under irritation of the spinal nerves is fatigued, he has lost just so much ground on the road to recovery.

"Gentle exercise in an open carriage, or sailing in an open boat, above all, if the recumbent posture can now and then be assumed, are strikingly efficacious, when the cure has made a certain advance; but, too often, these very measures prove destructive, by being adopted at a too early period of the complaint, or an unsuitable season of the year."

"To keep the mind in an easy and cheerful frame, I have always found to be of the last consequence. Anxiety, deep thought, the indulgence of the angry passions, or habits of abstruse reasoning are fatal barriers to a cure."

The foregoing brief exposition will enable our readers to judge of the pathological views and therapeutical measures advocated in the present publication of Dr. Marshall; as to how far they are in accordance with facts, and the results of experience, we offer no opinion. The particular points embraced in the work are certainly of importance, and deserve a candid and close examination before they are adopted as true or rejected as altogether false.   D. F. C.

ART. XXIV. *Elements of Bed-side Medicine and General Pathology; or a
General Disease-Discourse, with a Sketch of the Origin, Progress, and
Prospects of Clinical Medicine and Surgery, followed by an Exposition
of the Creeds of Medical Materialism and Vitalism, and a Confession
of Mixed Medical Faith, entitled Vegetable, Brute, and Human Or-
ganizationism, etc. etc. The whole chiefly grounded on a digested range
of select Analytical and Condensed Translations, with Eductions from
the writings of Standard Authors, French and British.* By J. STEWART
THORBURN, M. D. London, 1836, 8vo, pp. 437.

We really feel at a loss how to convey to our readers any correct idea of
the work of Dr. Thorburn. Although the title is sufficiently copious, and
apparently explicit enough, yet whoever shall attempt from it alone to form
any conception of the materials of which the work is composed, the subjects
embraced in it, and the manner in which those subjects are treated, will
find himself, we suspect, wandering widely from the truth. The work pro-
fesses to be a treatise upon clinical medicine and general pathology, but we
must candidly acknowledge that we can find in it but a very small amount
of matter which can be legitimately referred to either of these important
subjects. The author, we believe, lays no claim whatever to originality so
far as regards his matter. He confesses that he has "quarried" his facts
and views from certain of the writings of Landre-Beauvais, Chomel,
Ratier, Rostan, Serre, Cayol, Dance, Bricheteau, &c., and by "working
these up in accordance with a digested plan," he trusts that he has "suc-
ceeded in architecturing a literary edifice which may be considered in some
degree worthy of being occasionally tenanted by the mind of the clinical
student." From the foregoing sources, Dr. T. has unquestionably succeeded
in culling a few useful facts and very pertinent practical hints and observa-
tions; but whether he has presented them in a form best calculated for the
instruction of his readers, is, to say the least, somewhat doubtful.

If, however, the present volume be deficient in originality of matter, it is
certainly original in manner. With those subjects more properly apper-
taining to the science of which he professes to treat, the author has con-
trived to interweave most curiously others of so dissimilar and discordant
a character, that no one would have dreamed of meeting with them in a
medical treatise; and the whole is expressed in a style so very unique, so
replete with puns, with out of the way terms and fantastic modes of ex-
pression, that, did not the name of Dr. J. Stewart Thorburn appear upon
the title page, we should almost have suspected that the facetious T. Hood,
tired of "architecturing" comic annuals, had tried his skill in concocting
the elements of "bed-side medicine." Thus, connected with sundry grave
remarks upon cliniques, etiology, symptomatology, and pathology, or, as
our author has anglicised it, "disease-discourse," we have a parallel be-
tween the character of the Arabs and that of the Highland Scotch, a dis-
quisition upon Arabian literature, an epigram of Martial, an anecdote of
one of the Bishops of Llandaff, an exposition of literary and scientific hoax-
ing, forging, trimming, and cooking, with references to Rowley and Chat-
terton, Shakspeare and Ireland, Judge Breckenbridge and the American
Philosophical Society, an examination into the Quakerism of Benjamin
Franklin, &c. &c. But the heterogeneous materials of which Dr. Thor-

burn has "builded up" a "literary edifice" for the mind of the clinical student, will be best shown by a reference to the table of contents of one or two of the sections, as given by himself.

Thus Part II. treats, among other things, of "a source of interminable fallacies in medicine. 'Matter of fact practitioners.' Mistakes and frauds of observers. Hoaxing, forging, cooking, and trimming. More false facts than false theories. Forgeries. The bat's wing. Teague O'Regan and the *Philosophical* Society. The value of sound theory in science. Influence of MEDICAL FAITH—Homoöpathism—Allopathism—Antipathism. Death of the ex-empress Josephine. Expectantism. Eclectism. Broussais and the Moor of Venice. Logic—Attention paid to it by materialists. What *is* logic?—Inattention to, on the part of physicians and theologians. The affectation of modern infidelity. Remarks."

Part. III., section 7, treats of "Observation and experiment. Advantages derived from observation. An ignus fatuus which oft bewitches. Cracks let in light. Observation of the moral and physical world. Locality of the intellectual faculties. Starting point of many discoveries. *Franklin and the French!* Seeming exceptions to the laws of nature. Should a medical observer be 'a genius'? Requisites to observe well in medicine. How Newton effected all his discoveries. Ten generations of a garden grub. Mental flexibility. Vitiated judgment. Hobby hypotheses. Prejudices. Fontanelle. Newton. Visions of the Apocalypse. Self-examination. Scepticism. Observation and induction. Conducting medical observations. University of Edinburgh. Bricheteau. Pinel. How to interrogate the sick. Valuable hints for clinical journalizing. Elementary, triple, and multiple complications. Concluding remarks."

Section 10 treats of "Occasional or exciting causes. Pan, Epi, and Endemics. Atmospherical and medical constitutions. There is a time for every thing. *Atmospherical electricity*—Dalton—Forbes. Idiopathic and symptomatic diseases. Period of incubation. Specific causes. Circumfusa. Excreta. Gesta. Body and mind. Tristram Shandy. Courier from Marathon. Italian lovers. Fanaticism. *Row*ites. *Irvin*ites. Contagion. Fracastor's creed, &c. &c."

As specimens of the author's very peculiar style, we present the following extracts. The first is from the preface, page ix.

"Part I.—Sketch of the Origin, Progress, and Prospects of the Clinique—will, I hope, be deemed useful and interesting to those for whose notice it has been specially framed. In preparing it, the sources most freely gleaned from, are the dissertations of MM. Bouillaud and Serre. After having *formulated* an extensive body of notes upon the subject, which grew upon my hands during a course of miscellaneous reading, M. Serre's pamphlet came into my possession. A hurried perusal of it, all but induced me to wholly abandon my then intention of putting the historical article, which had been previously *redacted*, into the printer's hands; and in *lieu* of it, to substitute a literal translation of the *Recherches.* But upon a more careful perusal of the *brochure* just *instanced*, I found that though M. Serre had grounded his dissertation upon facts adduced by many more authors and commentators than had been consulted by me, yet still the tendency or *drift* of his essay, as interpreted, did not appear to bear upon several points of presumed interest to the clinical students of this country. I finally, therefore, determined to take M. Serre's compilation to pieces—so to speak, with a view to reconstruct, under appropriate modified titles, an article embracing the *gist* of the researches previously noted, in addition to those upon other points more fully supplied, and it may be added—*guaranteed,* by M. Serre's more general, and of

course, more correct, acquaintance with the French literature upon the interesting matter of investigation under notice."

The following *punical* slap upon Broussaiism occurs as part of a note to page 128:—

"Whoever has watched the progress of French medical literature, during the last few years, must have been struck with the many softenings down and trimmings which Broussais's doctrines and practice have undergone. Broussaiism, as it is in 1835, is not Broussaiism as it was. Owing to the successive *embraces* which the '*new*' doctrine has received from its author and his brother *bruins* of the *press*, it has assumed a much more *bear*-able shape, and seems less exclusively calculated for the meridian of Paris. Not that 'the only true doctrine' was ever destitute of what the critics of the legitimate drama call 'points,' for, exclusive of egotistical attacks on its honourable opponents, as Professor Chomel rather cynically observed, it has three cardinal *points—gastritis, gum-water,* and—*leeches!* Violà, touté la medécine physiologique!"

At page 84, we meet with the following remarks on morbid anatomy:—

"Pathological anatomy, must, however, be considered as the serf, not as the autocrat, of the healing art. That its progress has been retarded, and its cause temporarily injured by the exaggerations of undiscriminating eulogists, cannot justly be doubted. By many it is cried up as if, already, it were the right arm of the art of healing! In the present state of science, at best it is no other than the little finger, so to speak, of the entire hand of the genius of medicine; and is it saying too much, that the treatment of disease, if grounded on our existing knowledge of morbid anatomy, is, from the very nature of things, infinitely more precarious, and less rational, than that grounded, even solely, on the data of symptomatological empiricism? Such doubts are hazarded, not against the value in itself, of a sub-department in medicine confessedly of such intrinsic worth, though beset with difficulties, neither few nor small,—but against the prejudice and apathy entertained towards pathological anatomy by several, by whom, in fairness, it should be borne in mind that charges of inadequacy and misdirection are often falsely attributed to a science, instead of either inability on the part of the instructor, or to misapprehension on the part of pupils. In applying the information furnished by morbid anatomy, it should be especially remembered as a caution, that many pretend to teach what they have yet to learn—thus bringing their maltreated subject into discredit more than misplaced.

"How, then, should the question be answered—where does the failure lie when scarcely any or no alteration is detected, on making cadaveric inspections? How hundreds are led away by the sweeping scepticism of a few! Before joining in the crusades preached by certain medical Peter-the-Hermits from such texts, would it not savour less of imbecility to inquire whether the failures of the herd alluded to, do not rather indicate how finite the intelligence, how helplessly unaided are the senses of observers, than prove any insufficiency upon the part of the science? To reply, therefore, that tangible lesions or appreciable changes have not been discovered, is certainly much more becoming than to assert that 'none exist, or have existed?' So much for disbelievers. But there are unbelievers too; and the scepticism of prevention is ever the most childish of any, as the finger of history shows forcibly in the case of unbelieving men of quantity. Ultra-arithmeticians, it would seem, have ever been dogmatical, as in Pascal's time, when more than a poor handful of such sceptics took upon themselves to determine that there were just 27,000 stars—nor more nor less; by these hilts; for they asseverated, in the spirit of Falstaff, and produced their stratches and calculations, likewise, as an *ecce signum.* After star-gazing, however, through the bound telescope, to peer through which they at first seemed somewhat reluctant, the majestic revelations of that world-reading instrument smote them in hopeful humiliation. Even the most previously self-sufficient ceased for a time to look, ανθφωπος-like, (ανθφωπος-like?) heavenwards, and withdrew, with downcast eyes, to resume their alphabets of the sciences, and recommenced every thing afresh, as infants even in self-knowledge!"

Upon the whole, Dr. Thorburn has succeeded in "architecturing" an extremely amusing and to a certain extent instructive volume, out of odds and ends industriously collected from the works of others. The present being said, at the foot of the last page, to conclude only the first volume, we presume that we are to be furnished in due time, with "other medleys like unto it." Such productions are certainly beneficial to the paper maker, printer, and book binder; whether equally so to the cause of medical science, we shall leave to others to determine. D. F. C.

Art. XXVI. *Die Cholera in Wien. Ein beytrag zur lösung der wichtigen fragen; Worin besteht das wahre wesen dieser krankheit? Wie wird ihr zuverlässig vorgebeugt? Durch welche cur-methoden werden selbst die im höchsten grade befallenen schnell und sicher gerettet? Wie ist man im stande diese seuche minder verheerend zu machen, und die furcht vor selber ganz zu verbannen? Als resultat hiesiger beobach-tungen und eines heilverfahrens, durch welches von* 143 *cholerakranken, in den tagen der grössten gefahr,* 139 *gerettet und vollkommen wieder hergestellt wurden. Zur allgemeinen beruhigung mitgethielt.* Von Anton Dominik Bastler, Docter der Medicin und Chirurgie, Ordentl. mitglied der löbl. medicinischen facultät, &c. Vienna, 1832, 8vo, pp. 134. *The Cholera in Vienna. A Contribution towards the solution of these im-portant questions:—In what consists the real nature of Cholera? How may it with certainty be avoided? By what method of treatment can those affected with it in its most violent forms be quickly and safely re-stored to health? In what manner can the epidemic be rendered less de-structive and completely divested of its terrors? Being the result of the author's own observations, and a method of cure by which* 139 *out of* 143 *patients affected with the disease at the period of its greatest virulence, were perfectly cured. Communicated for the benefit of the public.* By A. D. Bastler, Doctor of Medicine and Surgery, &c.

Did the work before us present any thing like a satisfactory solution of any one, much more, all of the weighty questions propounded in its title page, its publication would unquestionably have conferred a benefit of no trifling magnitude upon the human race. But, after carefully perusing it, while we admit that the author has thrown out a few very pertinent and useful hints in relation to the important epidemic of which he treats, we are under the necessity of saying, that, in our opinion, he has completely failed in elucidating either its real nature, its causes or its treatment. The work, in fact, contains very little, if any thing, in relation to the disease, in the slight-est degree new to the great body of the medical profession; while its leading propositions have been either denied or controverted by subsequent writers. The pathological views of Dr. Bastler, as an hypothesis, may be praised for their ingenuity, but cannot be said to be established by well ascertained facts, and his method of cure, though far more rational and effective than the multitude of those which have received the sanction of more imposing names, has, nevertheless, been fully tried, without being found adequate to lessen, in any great degree, the mortality of the disease, during, at least, its prevalence as an epidemic.

Judging alone from the numerous *'clear'* expositions of the nature and causes of cholera, that have been so confidently presented to the public within the last eighteen years, and the *'almost invariably successful'* modes of treatment which have been announced with becoming gravity, and authenticated by the results of extensive experience, we should certainly conclude that this disease, the prevalence of which so lately inspired all classes of society with alarm, and resisted the best directed curative measures, is now to be ranked among the best known and most easily and certainly managed of any upon our nosological charts. Were such the case in fact, happy would it be for the human family!

That we are now much better acquainted with the nature and exciting causes of cholera, than we were previously to its occurrence, as an epidemic, in Europe and this country, is unquestionably true. And that we are better able now than formerly to arrest its fatal termination, and in a far larger number of cases, is likewise certain. But while we acknowledge that the disease is divested of much of its mystery, and is more completely under the control of the physician than it was on its first appearance in India, we fear that it would be very far from the truth to say that we know enough of its pathology and proper management to be able to rescue from death upwards of nine-tenths of those attacked by it in its most aggravated grades, as Dr. B. would lead us to believe was his good fortune. Were such the case, the disease might truly be said to be entirely divested of its terrors.

We do not conceive it to be necessary to enter into an analysis of the work before us, nor even to present a general outline of the author's views and therapeutical directions. To do either in such a manner as to enable our readers properly to understand the subject in all its bearings, would require more space than we conceive its importance merits—more especially as the work appears to us to have been written rather with the view of calling the attention of the public to the pre-eminent skill of its author as a cholera physician, than for the more legitimate purpose of instructing the medical profession.   D. F. C.

Art. XXVII. *Revista Medica Fluminense, publicada pela Sociedade de Medicina do Rio Janeiro.* Nos. 1 to 5, for April to August, 1835, inclusive. Rio Janeiro, 1835.

This well conducted, but unpretending periodical appears to have been undertaken to supply the place of a weekly journal which had previously existed at Rio Janeiro, but was discontinued for the want of sufficient patronage.

Each number contains about forty-eight octavo pages, and is divided into three parts. The first presents an account of the acts and deliberations of the Medical Society of Rio Janeiro; the second, memoirs and original papers and cases, and articles translated from foreign periodicals, &c. The third part is devoted to critical analyses, extracts from medical publications, articles devoted to the accessory sciences, varieties, notices of learned societies and the premiums offered by them; bibliographical notices, correspondence, and announcements of new medical publications.

Besides the proceedings of the Medical Society, the numbers before us contain, in the original department, a history of a case of volvulus cured by the introduction of a sound per anum by Dr. Meirelles. A memoir on tobacco by Dr. Maia. A description of two native plants by Dr. Xavier. On the miasma of cholera by Dr. Candido. Relation of a case in which there occurred an ulcer penetrating the aorta at its origin with the heart, giving rise to an effusion of blood into the cavity of the pericardium, by Dr. Pimentel. Topography of the city of Recife, in the Province of Pernambuco, &c. &c.

The contents of these five numbers have impressed us with a very favourable opinion of the state of medical science at Rio Janeiro.

<div align="right">D. F. C.</div>

Art. XXVIII.—*Mémoire sur le Cholera-Morbus, compliqué d'une Epidémie de Fièvre Jaune, qui a régné simultanément a la Nouvelle Orléans en* 1832. Par M. Michel Halphen, Docteur Médicin a la Nouvelle Orléans. 8vo. pp. 192. Paris, 1833.

Observations sur le Cholera-Morbus qui a régné a la Nouvelle Orléans en 1833 *et en* 1834; *faisant suite au Mémoire sur le Cholera-Morbus de* 1832. Par M. Michel Halphen, Docteur Médicin, &c. 8vo. pp. 182. Paris, 1835.

A Memoir upon Cholera Morbus complicated with Yellow Fever, as it prevailed in New Orleans during the epidemic of 1832.

Observations upon Cholera Morbus as it appeared in New Orleans, during the years 1833 *and* 1834; *being a Sequel to the foregoing Memoir.* By M. M. Halphen, M. D., of New Orleans.

These two works of M. Halphen present an extremely interesting history of the epidemic cholera. which prevailed at New Orleans, during the years 1832, 1833, and 1834. They embrace, likewise, the detailed account of one hundred and twenty-three cases of the disease, which fell under the care of the author; the whole presenting a very full clinical exposition of its mode of invasion, symptoms, progress, and termination, together with the plan of treatment which, according to his statement, he has found almost invariably successful.

The Observations of M. Halphen are the more interesting, from the fact of the cholera having prevailed at New Orleans, in conjunction with an epidemic of yellow fever; many of the patients being affected with both diseases either simultaneously or successively.

The author presents, in the first place, a view of every important particular connected with those localities, where the two epidemics prevailed most extensively. Pointing out succinctly the nature of the soil, climate, water, buildings, public and private establishments; together with the food of the inhabitants, their modes of life, and the defects in the sanitary regulations of the city, and in their administration. The period and manner in which the cholera made its appearance in New Orleans, are then considered.

Towards the decline of the summer of 1832, there suddenly occurred, we are told, in that city, numerous well characterized cases of malignant remittent fever, of gastro-cephalitis and of enteritis. On the 22nd of September a few scattered cases of yellow fever were observed. The cases increas-

ed during the first days of October, and by the fifteenth of that month, the disease had assumed a decidedly epidemical character. Never, according to M. Halphen, did the fever present symptoms of greater intensity, or demand a more active treatment. General depletion in the commencement of the attack, and other antiphlogistic remedies were almost invariably demanded—remedies, which our author has found to be altogether inadmissible in other visitations of the disease.

While the yellow fever was thus prevailing as an epidemic, the cholera, likewise, made its appearance at New Orleans. M. Halphen would appear to refer the introduction of the latter into that city, to the arrival of passengers from on board the steamboat Constitution, from St. Louis. He nevertheless waives the question as to its contagious character, admitting that "both the yellow fever and cholera are produced by a morbid state of the atmospheric air." "The miasms which give rise to cholera, or which result from it, are, in his opinion, of so deleterious a nature, that they are capable in combining with those miasms for which they have a particular affinity, of generating a source of contagion, sufficient to produce an epidemic, wherever circumstances favourable to the generation of such miasms are present." "The cholera," he remarks in another place, "never manifests itself epidemically excepting when local causes favour its developement; and among these causes, the insalubrity of a neighbourhood is to be ranked at the head of the list. Hence, when we consider the physico-medical topography of New Orleans, we can readily explain the reason why in that city, the disease has prevailed so extensively and permanently, and has been attended with so great a degree of mortality."

In 1832, out of a population of about fifty thousand, one hundred deaths from cholera were known to take place daily; and in the space of a very few days one-seventh of the entire population was included among its victims. During the two succeeding years the disease recurred; and sporadic cases, more or less numerous, according to accidental circumstances, have appeared every year subsequently.

On the 12th of November, 1832, the wind changed to north-west, and the temperature of the atmosphere became suddenly reduced. In less than three days from that period the epidemic had almost entirely ceased; subsequent to the 16th of the month, scarcely a solitary case was observed.

The author presents the details of fifty-seven cases of cholera treated by him during this year. Eight or ten of these, were cases in which the disease occurred in subjects, who were labouring under yellow fever. From these cases, it would appear, that the antiphlogistic treatment, while it evidently reduced the violence of the fever, favoured the developement of cholera. It was only by the adoption of an opposite plan of treatment, that the author succeeded in controlling the latter disease, when it occurred under such circumstances.

Several of the cases detailed by M. Halphen seem to prove, what the author asserts to be invariably the case, that the occurrence of an attack of cholera reduces almost immediately the intensity of the symptoms of yellow fever, when the patient has been labouring under this disease; and that in proportion as the former becomes developed, the latter abates, and finally disappears. The author has never, however, seen the symptoms of cholera cede upon an attack of yellow fever; hence, he concludes, that the first has

a much more malignant influence upon the organs of the body than the latter.

Another fact not less certain, according to M. Halphen, is, that persons who have not become acclimatized to the yellow fever, arriving in New Orleans during the prevalence of cholera, have not been affected as they would have been in ordinary seasons, or had the cholera not prevailed. Again, in such of them as had experienced an attack of cholera, the disease, when it did occur, was less severe than even in the acclimatized, and, finally, many individuals labouring under gastro-enteritis, have found themselves completely cured of it, after recovering from the cholera.

The remedy upon which the author chiefly depended for the cure of cholera in the cases which fell under his care, was sulphat of quinia, combined with lactucarium; and the facts which he has adduced, would all certainly appear to prove it superior in efficiency to all the other remedies that have been proposed for this disease. It was administered either in pills, composed each of three or four grains of sulphat of quinia and half a grain to a grain of lactucarium, and administered every five, ten, fifteen, or twenty minutes, until reaction took place; or forty grains of the sulphat of quinia and from six to ten grains of lactucarium were dissolved in six ounces of fluid, of which a spoonful was given at intervals more or less short, according to the circumstances of the case. Six to ten grains of the sulphat of quinia, and from two to four of the lactucarium, in a pint of mucilage, were also injected per anum, every fifteen minutes, until the diarrhœa was suspended. Sinipisms and stimulating liniments to the surface were at the same time frequently employed.

By this plan of treatment, we are assured by M. Halphen, that a general, moderate, and regular reaction was almost invariably established, and the speedy convalescence of the patient ensured.

The author has given an account of but few autopsical examinations, and these are very deficient in their details.

Only a single case is recorded in the works before us, in which a fatal result ensued under the use of the quinia and lactucarium. We should have been more satisfied, and been enabled to arrive at a more positive conclusion in regard to the real value of the remedy, had the author enabled us to judge of the final result of the whole number of cases in which it was employed by him; we are always suspicious, when, in an epidemical disease of so violent a character as cholera, we receive statements of the almost universal success of any remedy or set of remedies. Our own experience has taught us, that, during the height of the epidemic, a very large number of cases will prove rapidly fatal under almost any plan of treatment. We do not wish to be considered as insinuating a want of honesty or perfect candour on the part of M. Halphen in the statements given in the works before us; we merely regret that all the data necessary to form a satisfactory opinion in regard to the efficacy of the combination of quinia and lactucarium in the treatment of cholera have not been afforded us.

In the observations of our author upon the cholera as it appeared at New Orleans, in 1833, he remarks, that all the facts he has been enabled to collect, establish fully the predominance of that disease over every other. In the preceding year, all the strangers who arrived during the simultaneous prevalence of the cholera and yellow fever were exempted from an attack of the latter, which was not the case this year, the cholera having disappeared

17*

previously to its occurrence. Those individuals, we are informed, in whom the character and effects of the fever had been modified, in consequence of its complication with cholera, experienced no attack of the former in 1833, notwithstanding it was accompanied this year by very different symptoms and demanded a plan of treatment very dissimilar from that indicated the preceding year;—the disease being attended by no pain of the epigastrium, in the majority of cases; the patient's skin being covered with numerous petechiæ, and neither hæmorrhage nor vomiting being present.

In all cases of cholera, as well during this as during preceding and subsequent years, M. Halphen insists upon the complete efficacy exhibited by the combination of sulphat of quinia and lacticarium.

In the short notice which the author has given of the cholera of 1834, we have the following very just and candid remark.

"In my two previous publications, in relation to this disease, I have, I conceive, shown very fully what was its nature and character as it occurred in New Orleans, and what was the plan of treatment by which I have found it most successfully managed. I pretend not, however, to affirm that the cholera, wherever it has made its appearance, has been identically the same disease with that which prevailed in Louisiana. I have merely stated what I have myself observed, and it is only by comparing these local observations with such as have been made in other places, with a similar degree of impartiality and candour, that we can hope to arrive at any certain and useful general conclusions."

D. F. C.

QUARTERLY PERISCOPE.

FOREIGN INTELLIGENCE.

ANATOMY.

1. *On the Entozoa which are occasionally found in the Muscles of the human subject.*—Professor Harrison exhibited to the Medical section of the British Association, at the meeting in Dublin, preparations and drawings of a speckled appearance not unfrequently met with in different parts of the muscular system, and detailed the particulars of several cases in which it had existed: he expressed his full concurrence with the opinions advanced by Mr. Owen, in the Transactions of the Zoological Society of London, as to the animal or vital character of the bodies to which the appearance is owing. He next remarked some interesting coincidences in the cases he had examined: thus, in one instance, where the muscles were very generally affected, he found a large cyst in the liver which contained several hydatids. These were exhibited to the meeting. In all the other cases there were marks of scrofulous disease having existed, either recently or at some remote period: thus, in three cases the lungs were a mass of tubercular matter, and in another there were caries of the lumbar vertebræ and scrofulous suppuration in the adjacent structures. The Professor further stated, that in all the cases he had examined, this appearance was almost confined to the voluntary muscles: he had never met with it in the heart or intestinal tunics, but had found it about the circumference of the diaphragm, and in the other mixed muscles to a much less degree than in the voluntary: these bodies he stated to be more numerous on the cutaneous than on the deep surfaces of muscles, and to be deposited in the interfascicular cellular tissue, rather than in the fasciculi themselves.— *Lond. & Ed. Philos. Mag.*, Dec. 1835.

2. *Transposition of the Abdominal Viscera.*—The following remarkable example of this, observed in a post mortem examination of a patient, in the Calcutta General Hospital, is recorded by N. RALEIGH, Esq., in the *India Journal of Medical Science for February*, 1834.

"The large lobe of the liver occupied the left hypochondrium, the smaller lobe crossed the scrobiculus cordis, towards the right hypochondrium; the gall bladder which was filled with bile had its fundus directed towards the left side; the œsophagus passed through the diaphragm on the right of the spinal column to join the stomach, the cardiac extremity of which took up the right hypochondriac region, and behind and below it was the spleen; the pyloric portion of the stomach passed across the epigastrium towards the left side, the duodenum taking its course contiguous to the gall bladder, formed its curvature with the convexity to

the left, and crossed the second and third dorsal vertebræ to the right side; the small intestines then commencing, took their direction from right to left, and entered the caput coli in the left ilium, the ascending colon passed up the left side of the belly, the descending down the right side, to form the sygmoid flexure in the right iliac fossa.

"The disposition of the blood vessels was also reserved. The inferior vena cava was placed, at least, half an inch to the left of the aorta; the left renal artery was the longer of the two, and passed behind the vena cava; whilst the right emulgent vein crossed before the aorta, and the right common iliac vein passed behind the left common iliac artery.

"Although a complete transposition of the contents of the abdomen existed, with exception of the wide separation of the great blood-vessels, the several viscera maintained their position with relation to each other, as when distributed in a natural manner."

The contents of the chest observed their natural disposition.

3. *Case of Complete Absence of the Uterus.*—A female, forty-six years of age, who had never enjoyed good health, and was of weakly constitution, had arrived at the age just mentioned without having once menstruated. At the period of puberty, the body and mammæ were well formed; but the menstrual discharge was replaced by a constant pricking pain in the left hypochondriac region, occasionally shooting down to the pelvis. The exacerbations of the pain were accompanied with vomiting, and occurred generally every month, but not regularly. In the twenty-sixth year of her age, for the first time, a slight discharge of blood took place from the vagina, the patient being affected with acute fever. At the age of forty-six she was compelled to have recourse to medical advice, from an increase of pain in the left hypochondrium. The symptoms were dissipated by antiphlogistic measures. The woman now permitted an examination of the genital organs; the external parts were in a normal state, but the vagina, which was about one inch in length, terminated in a cul de sac. In the course of a year this patient died of peritonitis; and, on examining the body, Dr. Albers found the internal genital organs in the following state: the vagina, as already said, terminated in a cul de sac. About one inch and a half from it, and placed laterally, were found two bodies not larger than a good-sized walnut; these were oblong in shape, and did not seem to have any connexion with the vagina; however, each of them sent off, upwards and sidewards, a distinct bundle of fibres, terminating in the vicinity of another body, which appeared to be the imperfectly developed ovary. Each of the oblong bodies, which we must consider as the rudimentary elements of the uterus, contained a small cavity, lined with a membrane analogous to mucous membrane. The tissue of the parietes, not more than two lines thick, was soft and fibrous. It was not easy to distinguish it from the round and broad ligaments, as all the parts together were enveloped in a mass of cellular tissue.

The Medical Society of Toulouse was lately occupied with the case of a woman in whom also probably the uterus was wanting. The vagina here terminated in a cul de sac; the patient had never menstruated, and external examination could discover no trace of a uterus. Dr. Hohlfeld, of Berlin, has treated a similar case. The female, twenty-five years of age, had never menstruated. This was attributed to obstruction of the vagina. An operation was performed with the object of establishing a communication between the vagina and supposed uterus, but without success.—*Lancet, 9th Jan.* 1836, from *Kleinert's Repertorium, 24th Sept.* 1835.

PHYSIOLOGY.

4. *Professor Panizza's Experiments upon the Nerves of the Tongue, with the view of Determining their Respective Functions.*—The *London Medical Gazette* for 19th Sept. last, contains a notice of these interesting experiments, by Dr. Burrows. The memoir of the Professor of Pavia (*Richerche sperimentali sopra i*

Nervi) not having reached us, we take the following account of these experiments from the communication of Dr. Burrows.

The controversy which has long existed respecting the nerve which supplies the sense of taste, and various considerations which led Prof. P. to distrust all that had been advanced on the subject, determined him to discover by means of infallible facts, the function performed by each of the cerebral nerves, distributed to the tongue.

Prof. P. commenced with experiments upon the hypoglossal, and then proceeded to the lingual, and lastly to the glosso-pharyngeal. He chose the dog generally for these experiments, because this animal combines a great mobility of the tongue with an exquisite sense of taste, but he has not omitted extending his observations to other animals.

"Having muzzled and secured the legs of a dog, it was laid on the back, and an incision of the integuments made in the mesian line, in front of the os hyoides. In order to discover the hypoglossal nerve, the integuments must be detached for some distance on either side; the paniculus carnosus is then divided, and carefully removing the cellular tissue beneath, the lingual artery and hypoglossal nerve are brought into view. In this proceeding, it is desirable to keep close upon the os hyoides, by which means the nerve is reached before it passes under the mylohyoideus muscle. The nerve must be then separated from its connexion with the lingual artery, and a small portion of the nerve cut out and removed. Before the piece was cut out, and while the nerve was elevated by a probe, it was pricked with the point of the scissors, and the tongue was immediately convulsed; but the animal showed no signs of pain, neither was any pain evinced in the operation of excision.

The effect which follows the division of the hypoglossal pair of nerves is the immediate and permanent loss of all the motions of the tongue, the senses of taste and touch remaining. In fact, if a certain quantity of milk is offered to a dog after this operation, he greedily puts his nose to it, and makes those movements with his head and lower jaw which he would do to lap it up, but he does not put out his tongue to the very smallest extent; so that after many useless efforts, he abandons the attempt. There was no doubt that the milk was not touched, for the surface was never rippled, and after the experiment it was weighed, and found the same quantity as before. If a piece of bread, soaked in milk, is offered to the dog, he takes it into his mouth with eagerness, attempts to masticate it, but shortly lets it fall upon the floor, scarcely divided in halves; one of these he will take up again, subdivide it, and let them fall again; and so on until he turns away from the broken bits. In the various movements made to masticate it, if it should happen that in bending the head downwards the tip of the tongue should protrude at the angle of the mouth, it remains there flaccid, and the animal bites it, and suffers pain. One of the dogs thus submitted to experiment was so gentle, that it licked the hand upon being caressed; and after the division of the hypoglossal pair, it made the same attempts to lick the hand, but it was unable to put its tongue out of its mouth. Not only the voluntary movements of the tongue, and those which assist in mastication, are destroyed by the excision of a portion of each hypoglossal nerve, but also those motions of the tongue which contribute to the act of deglutition are also annihilated. A bolus of small pieces of bread and meat was made, and placed upon the dorsum of the dog's tongue. At first he made various movements, which showed the difficulty he experienced in moving the ball of food from the spot on which it was placed, but at the same time led to the belief that he would accomplish the mastication, and swallowing of it; but if the bolus did not happen to be displaced by its own weight, or by the motions of the lower jaw, and thus to be thrown out of the mouth, or between the tongue and the teeth, it was still found on the tongue, even after the lapse of many hours. Deglutition is not accomplished except when the ball of food reaches the cavity of the pharynx, and then by the simple action of the pharyngeal muscles; but even in this case deglutition is imperfectly performed, inasmuch as the ball of food, being compressed by these muscles, is broken to pieces, and returns in part into the mouth through the isthmus faucium, which is not closed by the paralyzed tongue. The same thing happens if water is poured into the fauces of the dog, for the purpose of giving him drink. On these accounts it costs great time and trouble to keep the dog alive.

The attempts made by the dog to displace the food from the back of the tongue, the pain he suffered upon accidentally biting it, and the endeavours he made to replace the tongue in its natural position when it was put on one side in feeding him, are all facts which prove that the dog feels his own tongue, and with it feels the contact of foreign bodies. To make more certain of this point, the tip of the tongue was pricked, and the animal gave signs of acute pain; and after a little time, a small hook was put into the middle of the tongue, with the intention of drawing the tongue forward, but the dog howled so loud, and resisted so much, that the hook was removed, from fear of tearing the tongue. When the tongue was pricked towards the base, it gave evident pain, and occasioned efforts to vomit. It is therefore quite clear that the sense of touch remains after the exci- sion of portions of the hypoglossal nerves.

In the foregoing experiment, it was not clear whether the sense of taste was affected; for although the dog attempted to masticate a piece of meat, he might have been induced so to do by the sense of touch, or smell, or taste. To illustrate this point, a small feather, previously dipped into a solution of colocynth (which has a sour disagreeable taste, and no smell) was lightly applied to the dorsum of the dog's tongue; the animal quickly showed, by the movements of his head, by turning up his lips, and other signs indicative of disgust, how disagreeable the flavour was. A piece of bread soaked in the same solution, and put into the ani- mal's mouth, occasioned the same marks of dislike to the taste of the colocynth. From this we may infer that the peculiar sense of the tongue is preserved after the excision of the hypoglossal nerves.

Similar experiments were performed upon sheep, with precisely identical re- sults: the animal was no longer able to draw into the mouth, by means of the tongue, twigs, and leaves, and herbage; besides this, the bleating became harsh, and not so loud as before.

Thus then since it appears that the excision of the hypoglossal nerves immedi- ately and entirely destroys the motions of the tongue, there can be no doubt but that this nerve is the efficient cause of those movements; and, on the other hand, as the sense of touch of the tongue and taste remains unimpaired, there can be no doubt that these functions depend upon some other sources of nervous influence.

To expose the lingual branch of the fifth pair of cerebral nerves, it is desirable to make an incision through the integuments in the mesian line, from the os hyoi- des nearly to the symphysis of the jaw. The integuments must then be reflected from the subjacent cutaneous muscle on either side, as far as the edge of the de- pressor muscle of the jaw. Then, upon dividing the cutaneous muscle, the mylo- hyoides is exposed; and this latter muscle must be cut through, to the extent of half or a whole inch, according to the size of the dog; when, upon turning on one side the edges of the divided muscle, the branches of the lingual nerve are brought into view. Care must now be taken to follow the course of the nerve backwards to the point where it gives off a branch which is distributed to the frænum of the tongue. After the nerve is separated from its surrounding attach- ments it is divided, and a portion removed to prevent reunion. The wound is then to be closed, and the edges kept together by stitches.

The effect which immediately follows this excision of a portion of each lin- gual nerve, is the complete annihilation of all sense of feeling in the tongue, while motion and taste both remain. In fact, it not unfrequently happens that the dog upon being set at liberty, begins to lick his nose and paws, especially if they are stained with blood.

If some milk, or bread, or meat, is offered to the dog, he eats and drinks readily, although, after the operation, it sometimes appears that the dog laps up the milk and masticates his food rather slowly, which may arise from the loss of the sense of touch, or in consequence of the deep wound. If, on the other hand, just enough colocynth, or infusion of quassia, be added to the milk, so as to give a bitter taste without altering the colour, or a piece of bread be dipped into the milk, or, in- deed, merely a few drops of the bitter liquid poured between the fibres of a piece of flesh, the animal, which up to this moment had evinced the strongest desire for meat and drink, immediately refuses both one and the other after taking one mouthful of either. If a piece of meat prepared with the bitter solution is mixed with several other, and the dog accidentally take it into his mouth, he immedi ately rejects it, and often refuses to eat any more.

These facts alone would not prove that the sense of taste still exists in the tongue, because the bitter flavour may be perceived by other parts of the mouth. In order to dissipate all doubt, it is therefore desirable that the bitter substance should merely touch the tongue itself; and to accomplish this, it is best to take a small feather, previously slightly dipped in the bitter fluid, and to draw it lightly along the dorsum of the tongue, taking great care the fluid does not extend beyond the points touched by the feather. With these precautions the animal still evinces the same marks of strong distaste for the flavour.

Thus, then, the division of the lingual pair of nerves neither destroys the motions of the tongue, nor that peculiar sense which resides principally in that organ.

The sense of feeling is that which suffers by the above-mentioned operation; and this is clearly shewn by the indifference and absence of all suffering on the part of the animal when severe injuries are inflicted upon the tongue. Thus punctures, the cautery, deep incisions and wounds made by the animal's teeth, cause no pain. Although some slight hesitation is occasionally observed in the acts of lapping up and masticating, still the animal uses his tongue freely. Indeed it would seem that the loss of feeling ought to occasion some obstacle to the perfect accomplishment of these acts, inasmuch as a part which is no longer felt, and which itself no longer feels, cannot be freely influenced by the will. But in this case is it not probable that the peculiar sense of taste, by means of flavours, may in part supply the loss of the sense of feeling? In this case, then, it will not surprise that the loss of feeling in the tongue does not induce all the effects which it would produce in other parts.

Since, then, by the division of the two lingual branches of the fifth pair, the sense of feeling in the tongue is destroyed, these nerves preside over this sense, which corresponds with the functions of the fifth pair in all the other parts of the face. On the other hand, if the motions of the tongue and taste are preserved, these functions of the tongue do not depend on these same nerves; or, at least, they do not depend on them primarily and solely. Moreover, if the motions of the tongue and the taste were destroyed, together with the sense of feeling, by the division of the nerves of the fifth pair, it would not be a proof that these presided over those two functions, but simply that the integrity of the sense of feeling was essential to the manifestation of the other two functions. It has been already shown from what nerve really proceeds every motion of the tongue, and it will shortly be stated from whence arises the sense of taste.

There are some, however, who maintain that the sense of taste results from the combined influence of the hypo-glossal and lingual branches of the fifth pair. To disprove this opinion both these nerves were simultaneously divided in the same animal, and the tongue was immediately deprived of all motion, and of the sense of feeling, whilst the taste remained unimpaired; so that upon touching any part of the tongue, and particularly towards the base, with the solution of colocynth, the dog evinces the strongest marks of disgust. The sense of taste, then, does not depend upon the combined influence of these two nerves, but upon the remaining undivided nerve; whilst the other functions of the tongue, which do not depend upon it, were successively annihilated by the successive division of the other nerves.

Although the conclusions from the foregoing experiments would be satisfactory to some persons, still (continues Panizza) it is better to proceed to direct experiments on the glosso-pharyngeal nerves. The division of these nerves is rather a delicate than a difficult operation. Having made an incision through the integuments along the mesian line, from the thyroid cartilage to the chin, the integuments are to be separated from the panniculus carnosus, as far as the angle of the jaw, and this muscle cut through along the course of the internal margin of the depressor muscle of the jaw. The edges of these parts, and any lymphatic glands there, must be turned on one side; and thus the space which exists between the depressor muscle of the jaw and the os hyoides is exposed; and it is in the very bottom of this space, filled up by cellular tissue and many large veins, that the glosso-pharyngeal nerve must be sought just coming out from the cranium.

The cellular tissue must be removed with the greatest care, to avoid wounding

the large veins; and it greatly facilitates the operation to have the edges of the wound drawn apart, and the bottom well cleansed of blood. A few fibres of the constrictor muscle of the pharynx are to be separated, and the glosso-pharyngeal nerve is then exposed. The nerve being insulated, it is desirable to divide it near its exit from the cranium, so as to comprise all its filaments. If the nerve be pricked before it is divided, the animal neither shows any signs of pain, nor is the tongue convulsed; the same is observed in actually dividing the nerve.

The effect which ensues is the complete loss of taste, whilst the motions and the sense of feeling of the tongue remain.

As soon as the dog had a little recovered himself after the operation of the division of the glosso-pharyngeal nerves, he licked up some water, and ate as freely as if no injury had been done to him. The animal had no other guide than the sense of smell in the choice of food, so that he will equally take into his mouth disagreeable and hurtful substances as well as pleasant and wholesome. The dog after this experiment ate with equal voracity plain meat as well as that imbued with colocynth, and equally drank the plain milk and that rendered bitter by colocynth. The dog not only devoured a piece of meat which had been beaten up with some colocynth, but even lapped up the remainder of the liquid in the plate.

Similar experiments were made at the same time with a dog whose lingual nerves of the fifth pair had been divided After this latter animal had caught in his mouth several pieces of plain meat which were thrown to him, he readily took in the same manner a piece with the bitter flavour; but he had scarcely got it into his throat before he was seized with vomiting; and he rejected this piece. A most remarkable contrast between the dogs was now observed; for the animal whose glosso-pharyngeal nerves were divided, immediately ate this rejected piece of meat. Nevertheless, this latter animal still preserved the sense of feeling in the tongue; for immediately on its being pricked the dog howled, and attempted to run away.

If, then, the division of the glosso-pharyngeal nerves causes a loss of the sense of taste, there can be no doubt but that this sense depends on that nerve, to which therefore, properly belongs the title of *gustatory nerve;* and if the division of these nerves causes no impairment of the motions of the tongue, nor of the sense of feeling, it is likewise certain that these functions do not at all depend upon these glosso-pharyngeal nerves.

In fact when the glosso-pharyngeal nerve is diligently examined, either in man or animals, as in the dog upon which these experiments were principally performed, it appears that, without giving off a single filament to the muscles through which it passes, the nerve is entirely distributed to the mucous membrane of the tongue and to the surrounding parts, which, in common with the tongue, enjoy the sense of taste; this sense is most exquisite there, where the filaments of the nerve are most abundant—that is, towards the base of the tongue.

In this manner, then, having established that the gustatory functions belong to the glosso-pharyngeal nerves, it appears that many phenomena of intimate sympathy which exist between the tongue and the stomach, are in this way much more easily and directly explained than was done by assigning the sense of taste to the lingual branch of the fifth pair.

"From these experiments upon the tongue, it is at last shewn, if I do not deceive myself," says Panizza, "that each of its nerves belonging to the cerebrospinal axis presides exclusively over one function, and that each in turn assists the other to accomplish a wonderful variety of effects. So entirely is it true, that nature, who is so complicated and varied in her operations, is most simple in the means she employs."

5. *On the Mechanism of the Bruit de Soufflet.*—Dr. CORRIGAN communicated to the Medical section of the British Association, at the meeting in Dublin, a memoir on this subject. The first part of the paper consisted of an analysis of the various theories which had been proposed to account for this sound and its varieties, *bruit de rape*, &c. Laennec supposed it to be produced by spasmodic action, but his opinion has been generally abandoned. By some the sound has been attributed to increased pressure made by narrowing of the heart or arteries,—but it is

heard in permanent patency of the aorta, in the vessels of the pregnant uterus, in aneurismal dilatation of arteries in varicose tumours, in all which instances there is no narrowing;—by others to increased velocity in the motion of the blood; but it is not heard in the circulation of the fœtus or infant, while it is audible in the slower circulation of the mother; nor in the quickened pulse of hectic or inflammatory fever, while it is audible with a pulse of 70. By others it is attributed to roughnesses in the interior of arteries, or irregularities, over which the blood, in passing, produces the sound; but it is not heard in the healthy heart, the internal surface of which is exceedingly irregular; nor is it necessarily present in aneurisms, rough and irregular on their inner surface, from shape, or from deposition of fibrine; the sound, on the contrary, being frequently heard when there is no deviation from the natural state of the interior surfaces of the heart or arteries.

The second part of the paper developed Dr. Corrigan's views. His theory is, that the sound depends on the simultaneous presence of these two conditions, viz: 1st, a current-like motion of the blood (instead of its natural equable movement,) tending to produce corresponding vibrations on the sides of the cavities or arteries through which it is moving; and, 2ndly, a state of the arteries or cavities themselves by which, instead of being kept in a state of tense approximation on their contained inelastic blood (which would necessarily prevent any vibration of their sides,) they become free to vibrate to the play of the currents within on their parietes; and by those vibrations cause, on the sense of touch, *"fremissement,"* and on the sense of hearing, *"bruit de soufflet."* It was shown that these two conditions are present in the parietes of the ventricle, and the currents of blood striking against them in cases of narrowed auriculo-ventricular openings; in the enlarged and tortuous arteries of the placental portion of the uterus permitted by their very free anastomosis with veins and sinuses, and other causes, to become partially flaccid in the intervals of the heart's contractions, and the irregular currents necessarily assumed by the blood in rushing along these comparatively flaccid tubes at their next diastole; and that similar conditions exist in the analagous state of the vessels in aneurismal dilatations of tortuous arteries. The presence of the two conditions was also applied to explain the mechanism of the sound in permanent patency of the mouth of the aorta, in the large arteries of animals dying of hæmorrhage, and in various other instances. In conclusion, two experiments were detailed, in which, in one instance, a small bladder, and in the other a portion of the gut of an animal, was interposed between two cocks, the upper or nearer being the cock of a water-cistern, and the lower or further constituting the discharging orifice of the bladder or gut, and water then allowed to flow through from the cistern. The sound *"bruit de soufflet,"* and the sensation *"fremissement,"* were perceptible in the intervening bladder or gut, until (from the upper pipe pouring in fluid faster than the lower discharged it) the bladder or gut became tense, and then both sensations ceased, the passage of the fluid through, nevertheless, continuing all the time. The experiment with the bladder was applied to explain the occasional presence and absence of *"bruit de soufflet"* in aneurisms, the sound being present in an aneurism when, from any circumstance connected with it, its parietes can become at all flaccid in the intervals of the heart's contractions,—not being heard if the parietes remain tensely applied to their contained fluid.

Dr. Corrigan has in some experiments substituted a gum-elastic tube for the portion of gut.—*Lond. & Ed. Philos. Mag.*, Dec. 1835.

6. *On the different offices of Lacteals, Lymphatics and Veins in the Function of Absorption.*—Dr. Handyside, of Edinburgh, presented to the Medical Section of the British Association, at the Dublin meeting, an interesting paper on this subject, in which, after starting with the proposition, now generally admitted, that these three set of vessels are one and all of them endowed with the faculty of absorption, he proceeds to lay down, as a general position, that each of these three systems of vessels is endowed with a peculiar office in the general function of absorption:

1st. That the lacteals absorb aliment, and refuse entrance to all other matters.

2nd. That the lymphatics remove the elements of the body which have become useless or noxious, to make room for the deposition of new matter.

No. XXXV.—May, 1836. 17

3d. That the veins, besides returning the blood to the heart, absorb various foreign matters.

1st. *Function of Lacteals.*—This appears to be decidedly to convey nutriment into the system, and that no other class of vessels can exercise that function would appear almost proved to demonstration by the experiments of Dupuytren, in which it was ascertained, that by applying ligatures round the thoracic duct of horses, death from inanition followed in all instances.

2nd. *Function of Lymphatics.*—Closely as the lymphatic system resembles the lacteal, even in the most minute details of anatomical characters, the vessels composing it nevertheless appear to have for their peculiar function the office of removing the debris of the body. After noticing the arguments of Dr. Hunter and Mr. Hewson as to this function being performed by the lymphatics, Dr. H. ingeniously observed, that in vegetables the debris, instead of being removed by vessels, are detached from their surface, as in the falling off of their leaves and the scaling off of their bark, or they are piled up in the interior of the individual, (as heart wood,) and preserved during the whole period of its existence; which circumstance, taken in connexion with the absence of a system of vessels in vegetables corresponding to lymphatics, may be regarded as affording a negative proof in support of the opinion here stated.

Dr. H. next alludes to the supposed communication between the veins and lymphatics, which he maintains does not exist except where great lymphatic trunks empty themselves into the venous system; thus showing an independent existence of the lacteal system, which argues in favour of their having to perform a separate function.

3d. *Absorption by Veins.*—Several experiments were detailed, proving that the absorption of fluids from the surfaces of serous and mucous membranes, and from the surface of the skin, was accomplished by the veins and not by any other vessels. These experiments consisted in the exposure of fluids containing ferrocyanate of potass and prussiate of potass to the serous and mucous surfaces, and to the skin stripped of its cuticle. Absorption of the fluids so applied took place, and by the application of suitable tests, the sulphate and deuto-sulphate of iron, the presence of the salts above mentioned was discovered in the blood, but never in the fluid contained in the thoracic duct.

The results of these experiments were similar to those of Flandrin, Tiedemann and Gmelin, and Magendie, and prove that absorption from the surfaces of the various organs is affected by the veins.

The last point alluded to is the absorption of foreign matters from the interstices of the tissues of the body.

Having pointed out in the experiments of Magendie, Edwards, Vavasseur and Brodie, instituted with the view of proving interstitial absorption by veins, as an objection to the conclusions which these physiologists arrived at, that in every instance the substances acted upon were introduced into fresh wounds, by which they were brought into contact with the blood passing into the vessel in its course to the heart. Dr. H. suggested and performed two experiments, which he considers to be free from the objections which he urges against the experiments of the foregoing authors.

They were as follow:

Exp. 1. Having made a fistulous opening in the abdominal parietes of a dog, I took advantage of the period when a complete granulating surface should be formed, to apply to it very freely the solution of prussiate of potass. On killing the animal three minutes after the application, and applying the appropriate chemical test to the blood, it was shown to exhibit traces of the poison.

Exp. 2 was performed by applying prussiate of potass, in solution, to a granulating surface on the back of a cat, for four hours, and at the end of that period the presence of the poison was discovered by the test in the blood from the carotid arteries, but no indication whatever of its presence was observed in the lymph.

From all the reasoning advanced and experiments detailed in this paper, the author has considered it proved, that the absorption of foreign matters, occurring from the interstices and surfaces of the body, occurs solely through the channel of the venous system.—*Dublin Journ. Med. and Chem. Science, Sept.* 1835.

7. *On the Motions and Sounds of the Heart.*—The following interesting report

respecting the successive motions of the different parts of the heart, and the sounds that accompany them, was made to the Medical Section of the British Association, at their meeting in Dublin.

"The committee having met several times, and having considered the different opinions hitherto advanced on the subject of the motions and sounds of the heart, proceeded to institute a series of experiments, the subjects of which were generally young calves; in which animals the heart is sufficiently large to admit of the motions and sounds being accurately observed, while their early age is favourable to the prolongation of the experiment, as it has been ascertained that the vitality of the different organs is more enduring, and less influenced by injuries to the individual, in animals at a very early age, than in those of a maturer growth. The pulse varied in the subjects for experiment from 76 to 80.

"The animals were prepared in the following manner:—a tube connected with a pair of bellows was inserted into the trachea, and the sensibility of the animals having been destroyed by a blow on the forehead, artificial respiration was commenced, by means of which the heart was enabled to continue its pulsations for a period varying in different subjects from one hour to two. The committee had been disappointed in their endeavours to procure some of the woorara poison, which has been used in similar experiments in London; and found, that the employment of prussic acid, in a quantity sufficient to suspend the sensibility of the animal, destroyed, in a few minutes, the power of motion in the heart.

"Section I.—*Experiments on the Motions of the Heart.*

Exp. 1. A calf, two days old, having been secured on its back, and prepared as above described, the sternum and a portion of the ribs on both sides were removed, when the following motions were observed. The heart was beating strongly, at the rate of 144 pulsations in the minute, but in a short time fell to 80. While still enclosed in the pericardium, the heart was observed to have a slight vibratory motion on its longitudinal axis, which motion, it may here be remarked, may assist in explaining the phenomenon of *frottement* in disease. On cutting open the pericardium, and turning it aside, both the auricular appendices were seen to project with a rapid motion upwards, or towards the place of the sternum, and immediately afterwards to recede. When coming forwards, they were swollen and soft to the touch; when receding they became hard to the touch, were diminished in size, and flattened. Immediately after the recession of the auricular appendices, the ventricles with a rapid motion assumed a somewhat globular form in their middle part, which projected towards their sternum, and their apex at the same time was pushed considerably in the same direction. During their continuance in this state, the ventricles were hard to the touch, and if grasped by the hand, at the commencement of the movement, they communicated a shock or impulse, and separated the fingers. When the ventricles had remained for a short time in the state just described, they suddenly sank downwards or towards the spine, and became elongated, broad and flat, and soft to the touch.

"This succession of motions having been observed for some time, a small glass tube was introduced through a puncture into the left auricular appendix, and the blood was seen to rise in the tube during the recession of the appendix, and to subside during its upward movement. A similar tube was introduced through a puncture in the right ventricle, and a jet of dark coloured blood was thrown forth during the globular and hardened state of the ventricles, and subsided when they became flattened and soft. A puncture was made in the pulmonary artery, close to the ventricle from which it arises, and through it a stream of blood issued synchronously with the jet from the tube in the right ventricle. A tube having been introduced through a puncture in the left ventricle, and one of the mesenteric arteries having been exposed and opened, the jet from the ventricles was observed to precede the jet from the arteries, by an interval easily appreciable. The femoral artery was opened, and a similar observation was made as to the interval between the jet from the left ventricle and the jet from that artery. Previously to opening the chest, the committee had satisfied themselves, that the beat of the heart, felt through the sternum and cartilages of the ribs, preceded the pulse, felt in arteries at different distances from the heart, by intervals of time which were proportioned to those distances: and they were also satisfied, that the jets of blood from the mesenteric and femoral arteries were synchronous with the pulses felt in those arteries.

"*Exp.* 2. In a calf, prepared as the former had been, and placed on its right side, a portion of the ribs on the left side was removed, the sternum and part of the cartilages on that side being left in their natural position, and the pericardium was opened. It was now seen that when the ventricles assumed their hardened state, their apex, and a considerable portion of their anterior surface were closely applied to the sternum, and when the hand was interposed between the latter and the surface of the ventricles, a strong compression was exercised on the fingers during each approach of the ventricles to the front of the chest. When the ventricles were in their softened state, their anterior surface, by which is meant the one corresponding to that called anterior in the human heart, was sometimes in contact with the sternum, and sometimes removed to a little distance from it, and from the contemplation of this, and the preceding experiment, the committee were satisfied, that the situation of the heart in the thorax is affected by the position of the body, as has been observed by others; for instance, that in the recumbent state, on the back, the heart recedes somewhat from the sternum: if the individual lie upon the face, the anterior surface of the ventricles is in constant apposition with the front of the chest, the pericardium of course being interposed. The yielding texture of the lungs, and the mode of attachment of the pericardium and the great vessels, are such, as to allow the gravitation of the heart to influence its position in different postures of the body. These experiments were repeated on different subjects, and the observations recorded above were confirmed.

Exp. 3. A rabbit was stunned, and its heart immediately taken out of the body and placed on the hand, with the anterior surface of the ventricles upwards. The ventricles continued to beat for some time, and assumed alternately the forms which have been described in the first experiment. During the continuance of the globular form, the body of the ventricles was protruded upwards, and their apex was considerably elevated from the hand: and while in this state, it was ascertained by measurement, with a pair of compasses, that the length and the breadth of the ventricles were diminished. On the collapse, or softened state of the ventricles, taking place, they became longer and flatter, and their apex sank towards the hand. The heart was now placed with the posterior surface of the ventricles upwards, and the globular swelling, in their middle part, was observed to alternate with the flattened form on this surface also; but the apex was not elevated as in the preceding part of the experiment.

"*Exp.* 4. The sternum of a frog having been removed, the following appearances were observed. The ventricle having become swollen, soft and red-coloured, sank and diminished in size, and became pale and hard; alternating in these qualities with similar qualities in the auricle. It was manifest from the colour of both ventricle and auricle in their swollen state, that they were then full of blood; and from their softness, that they were in their diastole.—When they became pale and diminished in size, they were in their systole. During the diastole of the ventricle, its anterior surface was protuberant and approached the sternum, while its apex drooped towards the spine. In its systole, the anterior surface receded from the sternum, and its apex was slightly turned upwards or towards the sternum. The finger being applied to the ventricle during its systole, a slight shock or impulse was felt. In this experiment the relations between the sternum and the ventricle, during the diastole and systole of the latter, are nearly the reverse of those observed in the hearts of quadrupeds in the foregoing experiments. In these the ventricles approach the sternum, during the hardened state or systole, and recede from it in the softened state or diastole. This difference depends on the dissimilarity of the heart in warm and cold-blooded animals, and will be adverted to again.

"Section II.—*On the Sounds of the Heart.*

"*Exp.* 5. A stethoscope was applied on the sternum, over the heart, in a calf in which artificial respiration had been established, and both sounds of the heart were distinctly heard; the first prolonged and dull, the second abrupt and clear. The sternum and ribs were removed, so that the heart beat free from the contact of any part of the thorax, and a stethoscope, connected with a flexible tube and ear-piece, having been placed on the pericardium, over the ventricles, both sounds were distinctly heard. In the experiments on the sounds of the heart, with the sternum removed, the flexible ear-tube was found to be serviceable in preventing the transmission of the shock or impulse, which was felt when the common stetho-

scope was used, and which embarrassed the observation. The ear was now applied very near to, but not touching the heart, and both sounds were distinguishable, but feeble. A small piece of board was placed over the surface of the ventricles, and kept in contact with the pericardium, and the common stethoscope having been applied to the surface of the board, both sounds were heard as distinctly, and very nearly as strongly, as when heard through the sternum. The ear-tube was placed on the ventricles, near their apex, and in this condition, the first sound was very distinctly heard; the second sound indistinctly. When the tube was placed over the origins of the large arteries, both sounds were heard distinctly, particularly the second sound. The pericardium was distended with tepid water, and in that state, both sounds were heard, but not so clearly as before the injection of the water.

"*Exp.* 6. In a calf, prepared as before, the sternum and ribs having been removed as in the last experiment, and the pericardium having been cut away, both sounds were listened to with the ear-tube applied to the different parts of the ventricles, with the same result as in the last experiment. The great arteries were compressed close to the heart, and the character of the second sound was altered; and at times it seemed to some of the committee that the second sound was lost, the first sound remaining unchanged. A fine curved needle was passed into the aorta, and another into the pulmonary artery, beneath the line of attachment of one of the semilunar valves in each vessel, and the needles were passed about half an inch upwards, and out again through the respective vessels, so as to confine a valve in each, between the needle and the side of the artery: upon applying the ear-tube over the origins of the arteries, it was found that the second sound had ceased, and that a sound resembling the first in character, and coinciding with the systole of the ventricle, was still audible. Some of the members of the committee thought that the sound just mentioned was prolonged beyond the usual duration of the first sound, as heard before the introduction of the needles; and towards the termination of the experiment, it was observed by some of the committee, that there seemed to be a repetition of the first sound, or two prolonged sounds similar in character, and which might be called rushing sounds.

"When the heart was removed from the body, and the semilunar valves examined, it was found that one valve in each artery had been confined against the side of the vessel, so as completely to prevent its descent. It may be remarked, that this operation may be performed with great ease, and almost with certainty of success.

"*Exp.* 7. The foregoing experiment was repeated on another calf, and with the same result, the cessation of the second sound. During the experiment, the second sound, somewhat modified, was heard to recur; and upon examination it was found, that the needle, which had been passed into the aorta, had slipped out. On its being replaced, the second sound again ceased. On taking out this heart also, the valves were found to have been confined, as stated in the last experiment.

"*Exp.* 8. A calf having been stunned, the heart was taken out immediately, and placed on the table. The ear-tube was applied to the surface of the ventricles whilst they were still beating, and at each systole a sound was heard resembling that called the first sound; no second sound was audible. When the heart had ceased to beat, the semilunar valves were destroyed, the ventricles were filled with water, and the heart being held upright, the ear-tube applied to the ventricles, and these compressed by the hand, so as to cause a rush of water through the arterial trunks, a sound resembling the first sound was heard; also, when the grasp of the hand was suddenly relaxed, a sound was heard of the same character as the preceding. The ear-tube having been applied to the ventricles in the dead empty heart, and their internal surfaces being caused to rub against each other, a sound somewhat resembling the first sound was heard. The finger having been introduced into the left ventricle through the auriculo-ventricular opening, and gently rubbed against the internal surface, a sound was produced resembling the first sound, and heard by the ear-tube applied externally to the ventricles. A glass tube, allowed to drop from a small height on the semilunar valves of the aorta, before they had been destroyed, caused a sound having the character of the second sound; and when the tube was introduced between the valves, and gently rubbed up and down, a sound resembling the *bruit de râpe* was heard.

17*

"Section III.—*The successive Motion of the different Parts of the Heart.*

"From the experiments on the motions of the heart, the following conclusions may be drawn: 1. In the heart of warm-blooded animals, the systole of the ventricles follows immediately the systole of the auricular appendices. 2. During the systole of the ventricles, the auricles are distended by blood from the venous trunks. 3. When their systole has ended, the ventricles becomes relaxed and flaccid; and blood passes rapidly, but not with force, from the auricles into their cavities. 4. The auricles are never emptied of their blood, and contract but little on their contents, an active contraction being observable only in their appendices. 5. If the interval between two successive beats of the heart be regarded as divided into four equal parts, two of these parts may be allotted to the duration of the ventricular systole; something less than one to the interval between the termination of the ventricular systole, and the beginning of the diastole of the appendices, during which interval little motion is observed in the auricles; and the remainder to the diastole and systole of the auricular appendices. 6. The ventricles, in their systole, approach the front of the thorax; and by their contact and pressure against it produce the impulse or beat of the heart. 7. The beat of the heart and the pulse in the arteries are synchronous, only, when the pulse is felt in arteries close to the heart: in those at a distance, the pulses are later than the beat of the heart, by intervals of time proportioned to the distances.

"In the heart of the frog, which was examined in the fourth experiment, the ventricles swelled, and approached the sternum in its diastole, and receded from it in its systole. This difference between the movements of the heart in that animal, and in the other subjects of experiment, may be explained by considering, that in the heart of the latter the swelling of the ventricles, during systole, is produced by the thickening of their muscular fibres, which are then in a state of contraction; and of which the mass bears a large proportion to the size of the internal cavities, while in the heart of the frog, the sides of the ventricle are thin, and the cavity is large, and the increase of thickness of the sides of the ventricle caused by the contraction of their fibres, is more than counterbalanced by the diminution of volume of the ventricle attendant on the expulsion of its contents.

"Section IV.

"From the experiments on the sounds of the heart, it appears to follow: 1. That the sounds are not produced by the contact of the ventricles with the sternum or ribs, but are caused by motions within the heart and its vessels. 2. That the sternum and front of the thorax, by their contact with the ventricles, increase the audibleness of the sounds. 3. That the first sound is connected with the ventricular systole, and coincides with it in duration. 4. That the cause of the first sound is one which begins and ends with the ventricular systole, and is in constant operation during the continuance of that systole. 5. That it does not depend on the closing of the auriculo-ventricular valves at the commencement of the systole, because such movement of the valves takes place only at the commencement of the systole, and is of much shorter duration than the systole. 6. That it is not produced by the friction of the internal surfaces of the ventricles against each other, as such friction cannot exist until the blood has been expelled from the ventricles, whereas the first sound commences with the beginning of the ventricular systole. 7. That it is produced either by the rapid passage of the blood over the irregular internal surfaces of the ventricles on its way towards the mouths of the arteries, or by the *bruit masculaire* of the ventricles, or probably by both these causes. 8. That the second sound coincides with the termination of the ventricular systole, and requires for its production the integrity of the semilunar valves of the aorta and pulmonary artery, and seems to be caused by the sudden check given by the action of these valves to the motion of the columns of blood driven towards the heart after each ventricular systole by the elasticity of the arterial trunks.

"The Committee wish, in concluding this report, to express their opinion, that although much light has been thrown on the subject of the motions and sounds of the heart, by recent investigations, here and elsewhere, the nature of the inquiry is such as renders it difficult in many instances to arrive at satisfactory conclusions. They also think that the subject, from its importance, whether in a practical view, or as an object of philosophical inquiry, is deserving of further investigation.—*Dublin Journal of Med. and Chem. Science, Sept.* 1835.

8. *On the Differential Pulse.*—Dr. M'Donnell laid before the Medical Section at the meeting in Edinburgh, some curious observations on what he calls the Differential Pulse, and at the meeting in Dublin he presented some further remarks on the same subject. Dr. M'Donnell finds that in lying, sitting, or standing, there are three distinct numbers in the pulse, any one of which being given, the rest may be discovered by inference. This variation amounts generally to twelve, fourteen, or sixteen beats per minute, as its normal state, and therefore, that all observations of the number of the pulse, which have been made without reference to this principle, must be considered as nugatory, unless it be implied that the person was in the *horizontal position* when the observation was made. This rule for reducing the number of the pulse to a regular standard applies to health, but not precisely to disease; the effects of posture must be investigated separately in each disease.

The *differential pulse* appears to be confined to man. It is not observed in brutes, probably because, from their form, their posture may be considered as always horizontal; but when placed erect this peculiarity appears also in them.

The variation, in the human species, is at its maximum in tall and feeble subjects, particularly in convalescents from typhus; the minimum is generally found in children. These facts lead to the supposition, that this phenomenon is connected with some hydrostatic law, and not depending entirely on vitality. This, however, is merely thrown out as a conjecture, and requires further investigation. But in whatever manner it may be considered, it is plain that in all attempts to ascertain the effects of remedies, as well as of natural causes, due allowance must be made for these fixed differences produced by posture. What avails it to say that a medicine, or venesection, or heat, or cold, or a thousand other natural causes, raise or depress the pulse by four, six, or eight beats per minute, when the mere change of posture would raise or depress it twelve, fourteen, or sixteen per minute, and this merely in health, for in disease the differential pulse is often double this proportion.

In tracing the connexion between the pulse and respiration in man and quadrupeds, he finds that it ranges in health from four to six pulses for one respiration. This he considers a new and material fact; for if it be established by further observation, that this is a general law, we shall be able to infer the pulse from the respiration, and *vice versâ.* This may be of advantage in enabling us to ascertain the number of the pulse in ferocious animals which we dare not touch, as well as in man during action or progression.

There is a coincidence between the number of pulses and steps in walking, at the common rate of progression in man, that is very remarkable, and has not been hitherto noticed. His breathings are also singularly proportioned to his steps, so that it is easy to deduce these numbers from each other. But in hard labour or violent muscular exertion, as in running or ascending heights, the proportions are greatly altered. The same thing occurs in many forms of disease. There is reason to believe that the carbonization of the respired air has a great influence in all those cases where the number of respirations is greatly disturbed.

Dr. M'Donnell finds that the number of respirations, and by inference the number of pulses, are much the same in passing over the same space, whether we run or walk, i. e. they depend as much upon the space traversed as on the time. Thus he finds, if he walks 1000 yards in ten minutes or in eight, or runs over it in five minutes, the number of breathings are nearly the same. It is to be observed, however, that this rule does not apply to small portions of space, such as fifty or 100 yards. These facts, he thinks, are all complicated with carbonization and muscular motion, so as to require separate investigations.

In quadrupeds, especially when trotting or cantering, he has found that the steps, divided by the respirations, never give any fraction in the quotient, i. e. that these are universally proportional without any deviation. In man this does not occur, a circumstance which may arise from some peculiar anatomical or physical law in the connexion between the respiratory and muscular construction of these animals.

Dr. M'Donnell next referred to three errors observable in a work on consumption, published by Dr. Sanders, in 1808, first as to his claim to priority in noticing the differential pulse; secondly, as to his explanation of its cause; and thirdly, as to his idea that the amount of the differential pulse is always directly proportioned

to the natural or standard velocity of the pulse. It is true, when we rise erect from the horizontal position, a greater number of muscles are brought into action, but this has nothing to do with the phenomenon in question. He had proved this by placing different persons in an apparatus, so constructed that the body could be placed in all postures without any muscular motion, and he found that the dif- ferential pulse followed all the angles of elevation exactly, and this even in per- sons when asleep.' But when the body is inverted, with the head lowered and the feet raised, this rule does not hold good. This part of the subject he proposes to follow at a future opportunity.

Dr. M'Donnell next referred to exceptions to the doctrine of the differential pulse made by his friend Mr. Travers Blackley of Dublin. He had himself met with persons apparently in health in whom there was little or no differential pulse, but from some recent observations he is inclined to think that some of these exceptions may have arisen from disease of the heart or great arteries. He had certainly found the maximum of the differential pulse in aneurisms of the de- scending aorta, in three or four cases of which the pulse doubled on rising erect. Nevertheless it was fair to acknowledge that Mr. T. Blackley had found the most permanent or stationary pulses in cases of organic lesion of the heart. These facts, though apparently contradictory, may both be true, and may tend to estab- lish a just explanation when they are more numerous and more perfectly under- stood.

The greater number of these observations occurred to Dr. M'Donnell before he became acquainted with the writings of Laennec. Although Laennec's disco- veries have given a new turn to the subject, and created a more lively interest about the sounds of the heart, yet it gives a greater value to the foregoing facts as far as they are substantiated. One thing invariably occurred, that, in propor- tion as the pulse was accelerated or retarded, by change of posture, its strength and fulness were affected in an inverse ratio. He thought that an attention to this circumstance might probably assist in forming a more just measure of the strength and fulness of the pulse than any hitherto known, but puts this forward merely as a conjecture.

While engaged in these inquiries about thirty years since, he had found that the pulse in the arteries of the fœtus, before it breathed, was *slower* than in those of the mother. He had found also, that if the child, when born, remained for some time without breathing, the pulse continued slow during that interval, and became accelerated only at the instant it took in its first breath. This fact appear- ing to him new, he had investigated the circumstance in the cow, and finding the phenomena similar, he had communicated his observations to Dr. Clarke, Dr. Labatt, Dr. Stokes, and Dr. Douglas in Dublin, none of whom had ever noticed it in any author. Dr. Jefferay mentioned it in his lectures, and in his "Observa- tions on the Heart and on the Peculiarities of the Fœtus," and thought it might hold true of quadrupeds, and perhaps of all warm-blooded animals. He thought it probable that the fœtus before respiration was in the condition of a cold-blooded animal, and partook of that slowness of the pulse which characterizes the tribe. There is in the present state of our knowledge great difficulty in reconciling the slow pulse in the arteries of the fœtus with the rapidity of the sounds as heard by the stethoscope. How are we to reconcile such contradictory facts, as that 150 strokes or more should be heard by the stethoscope, while the pulse of the child is only 50 or 60? Supposing both these points established by observation, he would submit the following hypothesis in explanation, viz. that although there are but two sounds of the heart heard for every pulsation of an artery in the adult, it does not follow that the same ratio should exist in the fœtus. While the foramen ovale remains open and in the full performance of its office, it is plain that the two auricles cannot contract simultaneously; because in that case the blood could not be freely transmitted, the one driving it forward, the other backward at the same instant. Therefore, until nature closes that aperture, the right auricle must contract first, and the left immediately afterwards, while the ventricles will con- tract in unison as they do in the adult. Hence it happens, (if this hypothesis be true,) that instead of having two sounds of the heart for every arterial pulse, we shall have three or four.

I am aware, that it has been asserted, that neither of the sounds of the heart are produced by the auricles; but it does not follow that if this be true of the

adult, that it should be true of the fœtus, whose circulation is different. Besides, it has not been asserted by any one, that the pulse of the fœtus is slow or quick, but merely that the sounds of the heart are more numerous than in the adult. This matter, however, must be decided by future investigations.

It may appear surprising, how the sounds of the fœtal heart can be transmitted through the liquor amnii, and through the parietes of the uterus and abdomen in the mother, so as to become distinctly audible; but the following simple experiment will serve to explain it. Suspend a watch in a vessel containing many gallons of water, and on applying your ear to any part of the circumference of the vessel, you will hear the beats more distinctly than in the air. The same thing occurs when several folds of cloth are passed round the vessel. Dr. M'Donnell thought this was an argument in favour of the possibility of hearing the sounds of the auricles in the fœtal heart, though they could not be heard in that of the adult.

When the pulse is felt in the funis of a new born child, its strength and fulness appears to be equal to that of the larger arteries in the adult? Whence arises this impulse? While the ductus arteriosus is still open, the blood of both ventricles is driven at one stroke into the descending aorta; whereas in the adult, the blood passing through the descending aorta, merely receives the impulse of the left ventricle. Before respiration takes place, the vessels of the cord pulsate with great force, but as soon as the child breathes, they shrink rapidly and become pale and flat. Now all this occurs when you raise the fœtus and the cord above the level of the placenta. This happens whether the placenta be attached or not, whether the cord pulsates or not, and finally, after the arteries have been tied leaving the vein free.

Dr. M'Donnell concluded his paper with an account of several experiments made in descending twenty-six feet in a diving-bell; the result being that no change whatsoever was observed in the number of the pulse or breathing under all the variable degrees of pressure; but that the carbonization upon every volume of the expired air decreased and increased accordingly as he descended or ascended. Hence he infers that man and all such animals can live, if supplied with pure air, under all degrees of increased pressure, and also at all heights, until the quantity of oxygen in the atmosphere becomes incapable of decarbonating their blood.—*Ibid.*

9. *Gastric Juice.*—The experiments of Dr. Prout, and of Tiedemann and Gmelin in reference to the gastric juice, are confirmed by those of BRACONNOT, and prove that there is no peculiar substance to which this appellation should be applied, but that the remarkable peculiarity of the stomach is the property which it possesses of secreting a great quantity of muriatic acid. The gastric juice examined by Braconnot was obtained from a dog. He found it to contain.

1. Free muriatic acid in great abundance. 2. Muriate of ammonia. 3. Chloride of sodium in very great quantity. 4. Chloride of calcium. 5. A trace of chloride of potassium. 6. Chloride of iron. 7. Chloride of magnesium. 8. Colourless oil with an acid taste. 9. Animal matter soluble in water and alcohol, in very considerable quantity. 10. Animal matter soluble in weak acids. 11. Animal matter soluble in water, and insoluble in alcohol (salivary matter of Gmelin.) 12. Mucus. 13. Phosphate of lime. He found no trace of lactic acid.—*Records of General Science, Jan.* 1836, from *Annales de Chimie*, LIX.

PATHOLOGY.

10. *On the condition of the Vital Powers in Arteries leading to the inflamed parts.* —Dr. ALISON communicated to the Medical section of the British Association, at the late meeting in Dublin, some experiments on this subject, in continuation of those read to the section in 1834.—(See preceding vol. of this Journal, p. 183.) He detailed the result of two examinations of the arteries of limbs of horses killed on account of injury and inflammation of single joints, in one case of three weeks', in the other of eight days' standing. The power of contracting on a distending force, and expelling their contents, was tried in the arteries both of the inflamed

and the sound limbs, by the same contrivance as was used by Poiseuille to compare the contractile power of living and dead arteries; *i. e.* by using bent tubes and stopcocks in such a way as to distend a given portion of artery (first of the one limb and then of the other,) by water pressed into it by a firm weight of mercury, and then allowing the artery to expel the distending water, and getting a measure of the force which it exerts in doing so, by the rise of the level of water in a tube communicating with the artery. The result was in both cases in accordance with the observations formerly made, that the artery of the inflamed limb exerted *less* power of contracting on, and expelling its contents, than that of the sound limb. The difference was as 10 to 16 in one case, and as 125 to 175 in the other, which was the more satisfactory of the two, as the experiment was made more immediately after death.

It appeared also, on careful comparative examination, that the contraction of the emptied arteries at the moment of death (which is the measure adopted by Parry of the vital power of arteries) was less in the diseased than in the sound limbs; the difference between the contracted state immediately after death, and the subsequently dilated and dead state of the artery (28 hours after death,) being ¼th in the case of the diseased limb, and ½d in that of the sound limb.

It appears, therefore, that in all arteries of such size as to admit of measurement, and which supply inflamed parts, the only vital powers of contraction, which experiments authorize our ascribing to the coats of these vessels, is *diminished* during inflammation; and it may be safely added, that no other change but this diminution or relaxation of contractile power has ever been perceived, either in them, or in the smaller vessels which come under the observation of the microscope, at least during the greater part, and in the highest intensity, of inflammation.

But if it be inferred from these facts that inflammation consists merely in relaxation of vessels, giving an increased effect to the impulse of blood from the heart to the part affected, several facts may be stated to show that the explanation thus afforded is quite inadequate. The change which takes place on the movement of the blood flowing to an inflamed part is, diminution of velocity or absolute stagnation in the vessels most affected, combined with increased velocity and increased transmission in all the neighbouring vessels; and it seems impossible to ascribe both these opposite effects to the same cause, viz: a simple relaxation or loss of power in the vessels concerned. Neither can the characteristic effusions consequent on inflammation, and by which alone it is uniformly distinguishable from simple congestion or serous effusion, (and particularly the increased quantity and increased aggregation of the fibrin that exudes from inflamed vessels,) be explained by this change of the action of the vessels. And further, the local causes which excite inflammation are not only such as in other instances produce an increase, instead of a diminution, of vital power, but they are such as have been ascertained to produce, when they are made to act on minute portions of individual vessels only, contraction instead of relaxation; as has appeared in the experiments of Verschuir, Thomson, Hastings, Wedmeyer, and others.

The proper inference, therefore, appears to be, that the idea of an *increased action of vessels* in an inflamed part is indeed a delusion; but that there is a really *increased action within the vessels* of the part, *i. e.* an increased exertion of powers, by which the motion of the blood is affected, but the action of which is independent of the contractions of the living solids, and the effect of which is to cause distention and relaxation of the vessels, within which they act with unusual energy.—*Lond. & Ed. Philos. Mag.*, Dec. 1835.

11. *On the immediate cause of Death by Asphyxia.*—Dr. ALISON communicated at the same time some experiments on death by asphyxia, the immediate object of which was to ascertain whether the acceleration of the flowing blood through the lungs,—which is undoubtedly produced by respiration, and the failure of which appears, from the experiments of Williams of Liverpool, and of Kay of Manchester, to be the immediate cause of death by asphyxia, can be ascribed, as Haller and some very recent authors have supposed, to the merely mechanical influence of the alternate expansion and contraction of the lungs by the respiratory movements.

That this is not the fact might be concluded from the fatal asphyxia produced

by breathing azote or other gases, not poisonous, but not containing oxygen; in which case it had been observed by Broughton and others, that the stagnation of blood in the lungs, and the distention of the right side of the heart, take place equally as when the respiratory movements are suspended. But to this observation it might be objected, that the animals on which experiment had been made had been allowed to remain in the azote until they became insensible, and their respiration of course ceased, and had not been examined until some minutes after their apparent death, and it might be said, that the right side of the heart had become congested only after the acts of respiration had ceased, and in consequence of their cessation.

In order to avoid this source of fallacy, several rabbits were confined in azote, only until their breathing became laboured, the respirations generally less frequent, but much longer and fuller than natural. They were then taken out and instantly struck on the head with such force as to crush the brain and cerebellum, and arrest the circulation as instantaneously as possible. This was always attended with violent and general convulsion, but with no attempt at respiration, sensation being apparently instantaneously suppressed. When the body was opened immediately after the convulsion had subsided, the right side of the heart was always found distended with blood, and palpitating feebly; the left side at rest and comparatively empty: the quantity of blood obtained by puncturing and pressing the right side and pulmonary artery was from 5 to 10 times as much as could be obtained from the left side and aorta. When a rabbit previously breathing naturally was killed in the same manner, the quantity of blood on the right side of the heart (apparently accumulating there during the convulsions) was found to be greater than on the left; but the difference was decidedly less than when it had been breathing azote; and in one of these comparative trials the blood in the left side was found to be sufficient to keep up a feeble palpitation in that side, whereas in the animals that had breathed azote the left side was always found quite at rest.

It appears from these experiments that when oxygen is not admitted into the lungs in inspiration, even although the respiratory movements continued further and more forcible than usual up to the moment of death, the blood stagnates on the right side of the heart; and that the application of oxygen to the blood at the lungs, is a cause of acceleration of its movement through the lungs, independently of any influence of the mechanical movements of respiration.

If we further inquire, in what manner oxygen can give this stimulus to the flowing blood through the lungs, it appears certain that it cannot be by stimulating the small capillaries of the lungs (the only vessels to which it is directly applied) to contraction, because even if it be granted that there are vessels capable of contracting on irritation (which is very doubtful, the immediate effect of stimulating any arteries capable of taking on such action has always been observed to be a constriction permanent for some length of time, and in consequence a *retarded* flow of the fluids through them, as in the experiments of Wedmeyer.

If, again, we suppose the effect of the oxygen on the minute vessels in the lungs to be sedative or relaxing, and ascribe to a diminished action of these vessels the apparently increased efficiency of the right side of the heart when oxygen is applied, we suppose the oxygen to produce the very opposite effect to that which has always been observed when it or any other stimulus has taken effect on any individual artery.

The only mode in which it appears possible to escape from these difficulties is to suppose that the stimulus given by the oxygen to the flowing blood through the lungs, is a stimulus to that movement which is independent of any contraction of the solids containing the blood. This conclusion is in perfect accordance with the observations of Haller on the *derivation* of blood, perceptible under the microscope, towards any part where an opening is made in a vessel, and air admitted into contact with the blood, because he gives satisfactory reasons for thinking that this derivation is not owing to contraction of the vessels; it is also in accordance with observations on some of the lowest tribes of animals, and on vegetables, where *currents in fluids* are observed in connexion with the act of respiration, but no movement in solids has been detected; and even, as Dr. Alison thinks, with the observations of Purkinje and others, on currents connected with the respiratory organs in animals much higher in the scale, because although these last currents

have been ascribed by most authors to vibrations of ciliæ, which are seen to accompany them in various instances, it seems very doubtful whether they can be adequately explained without supposing a *"jeu d'attraction et repulsion"* to be commenced in these instances, as well as in the respiration of the lowest tribes.—*Ib.*

12. *Case of Aural Illusion.*—Our cotemporary, the *Jamaica Physical Journal*, (Sept. and Oct. 1835,) contains the following interesting case of aural illusion, communicated by Dr. FERGUSON. "A gentleman who had lived for many years in the West Indies, and had enjoyed good health—of robust frame, and of the sanguine temperament, came to me and asked if I had ever, in my practice, met with any individual who was tormented by a voice constantly speaking in or near to the ear. I replied, that illusions of the sense of sight were more common, and that I had often met with such, but that the ear was liable to the same derangement as the eye in this respect; and that illusions of the ear had occurred to others, though I did not recollect any case that had come under my *own* immediate notice. With a smile, but with some solemnity in his voice, he then observed that he had thought the second sight of his native land had been given to him, and that some evil was about to befall him, for that during the three preceding nights, a voice which he described to be soft like that of a female, and which he admitted he well knew, was constantly speaking to him; sometimes he said this voice addressed him in words of kindness, but generally in the language of reproach, or of the most fearful denouncing. On requesting him to repeat some of the words addressed to him by this unwelcome visiter, he told me he had been much tormented and distressed by the following conversation:—Where will you be to-morrow?—In your grave. And where then? And the same voice, in unmeasured terms, immediately condemned him to the abode of sinners. He declared he was wide awake—indeed, that he was sometimes walking through the room when he heard the voice. If my patient himself, for such I now considered him, asked a question, it would appear to be immediately answered by the same voice; or if no questions were asked, both questions and answers would proceed from one source. Thus, though the thoughts were only passing in his own mind, yet they appeared to come from without, and to reach the mind by impressions made on the ear. It is not to be wondered at, that the singular situation in which this patient was placed, should have caused him considerable doubt and alarm, and that he anticipated with horror a recurrence of the mysterious visitation when night should again seclude him from society. On enquiring if the voice was only heard at night, he said he heard it constantly—"now at this moment;" but that it became more awful and distinct in the stillness of night.

I had long known this patient. I had been in the habit of meeting him frequently, and of conversing with him, and I had never imagined even there was the slightest aberration of mind; on the contrary, I had often occasion to observe and estimate his good common sense. On speaking further with him, and observing his expression, manner, and deportment, I felt satisfied that he had not only all his wits about him, but that his mind was well formed to counteract the feeling of alarm engendered by the false perceptions of his ear, when the nature of his affection should be explained to him. I then proceeded to tell him that in some individuals, when any slight disorder took place in the brain, such as irregularity in the circulation in this organ, the mind appeared to acquire a power of impressing the retina or sense of sight with images as vivid as the realities—that I had no doubt his ear was similarly situated, and by correcting the state of the circulation in the brain, that the illusory sounds which he complained of would disappear, and that in the mean time he should keep this explanation present to his mind to ward off the dread or the belief of a supernatural interference. He appeared to be much relieved by this conversation, and he left me to resume his business. In the afternoon he took ten grains of Pilulæ Hydrargyri, and during the night he was tormented as before, and had no sleep; but in consequence of the explanation I had given him, he had been free from alarm, and had even ventured to jest with his apparition voice.

Next morning he was cupped between the shoulders, which produced some faintness and paleness of the face, which was before much flushed. All night he again took the Pilulæ Hydrargyri, combined with the compound extract of Colocynth, and a draught with twenty-five drops of the solution of the Acetate of

Morphia. He slept at night without dreams or disturbance from the voice. He was awakened by a friend going to his bedside in the morning, to whom he said he felt much better, and at that instant the voice was again heard, dooming him, as it had done before, to the abode prepared for the wicked. "You will be in hell again to-night," with a tormenting emphasis and long intonations, were the words which impressed the ear. When I called, he told me of the boast he had made to his friend, and the salutation which followed from his tormentor, and he declared that at this moment the words were constantly being repeated. I asked him frequently if the sound was any thing like the sensation, if I may so speak, of the remembrance of a sound, and he always declared it was not, but as distinct as a real sound. It was low and soft, and he imitated the voice as nearly as he could that I might have a better idea of it. As a proof of its distinctness, I may mention that when the patient was on some occasion sitting in a position which he could not at the moment change, he asked me if there was any one whispering behind him. It appeared also that the loudest sounds from without, such as the rattling of carriages immediately behind him, had no effect in diminishing its intensity. At times it appeared to whisper, but generally assumed a soft speaking tone. The "burden of the song" seemed to be the death of the patient, and his death was several times predicted to take place at a certain hour, and before he had learnt to repose his confidence in my view of his case, he had felt much uneasiness till the appointed hour was past. At other times the voice appeared to echo or repeat many times over the last words of any observation made by those conversing with the patient; or, words would appear to be·uttered which plainly took their origin in some association of ideas, which he could trace from the suggesting idea to the one which became impressed as a sound on the ear. While being cupped on the back, for instance, the flame and scarifications were associated with branding, and the attendant voice appeared immediately to say, 'you are branded for hell,' with many repetitions and prolonged intonations of the last word.

"In the evening, finding that he was little relieved from these strange illusory sounds, I directed him to take ten grains of calomel at bed-time, and to purge it off with some castor oil in the morning. He followed these directions. On visiting him in the morning, he told me he had passed a horrible night, and that in addition to his usual 'spirit voice,' he had had the company of a host of imps, who were trying to drag him off the earth—that he had finally triumphed over them all, and that in consequence a most magnificent song had been set up in his praise. He smiled at his own relation; he knew 'Queen Mab' had been with him, but I could not help remarking that even in his dreams the connexion of the mind with the sense of the ear seemed to have been strangely disturbed. In the course of the day the medicine acted freely on his bowels. He said he felt lighter and better, but the voice was still at hand, and almost constantly speaking to him, though it now gave him very little concern. The calomel purge was repeated at bed-time, and he also took a draught containing twenty-five drops of the solution of the Acetate of Morphia, and the castor oil was again taken next morning. He was found to have slept well and without dreams—the medicine was acting on his bowels, and he experienced little further annoyance. The healthy state of the brain was gradually restored, and in a day or two more the affection had altogether disappeared.

"I requested the gentleman who was the subject of the above case to give me an account of his symptoms, as well as he could recollect them, previously to the commencement of my narration, and he favoured me with the following, which I have condensed into as small a space as possible:—

"He had, for upwards of a week, been leading a life of considerable dissipation, and in order to rid himself of the uneasy feelings which that life of excitement had produced, he at once refrained from every excess, and took some purgative medicine on going to bed. The effect of this change was irritability and wakefulness; he got up at midnight, lighted a candle, and attempted to read. He found this to be fruitless, for he could not fix his attention, and at this time he fancied he heard a voice talking low, or whispering in the next room; he proceeded there and found he had been mistaken. He then returned to his bed and attempted to sleep, but he still heard the voice, and the attempt was vain. He got up and sought for the source of the voice in every corner of the house, of

course without avail. He became tired of this strange search, and recklessly muttering, 'be thou a spirit of health or goblin damned,' he returned to bed, but not to sleep. He heard incessant and fearful whisperings, relating generally to the misdeeds of his past life, which conscience seemed to have acquired the power of bringing up from the inmost recesses of the heart, and of communicating to the tormenting voice, that through the ear a more startling impression might be made than could result from the mere effect of memory. With the 'morning air," or rather the bustle of the day, the voice vanished for a time, or perhaps was unheeded or forgotten.

"The next night, and the next, he must have 'supped on horrors,' for he heard according to his own expression, 'fiend-like dialogues, songs of ribaldry, and all manner of threats and imprecations.' On the third night he went some distance into the mountains, expecting relief from change of scene, but he had scarcely entered his new abode, when he found the voice was with him:—'Come to your room, come to your room,' was the immediate salutation. While he was at dinner, and during the whole evening, the same words were incessantly repeated. He did at length *go to his room*, and he says, 'throughout that long dark night no description of my sufferings is possible—may they never be renewed. You know the rest. Your kind care soon relieved my mind, though it was some time before the illusion of the ear would yield an inch, and even to this day a sort of echo of it is at times perceived.'

"To this account I shall just add there was no deception of the eye except on one occasion, when he thought he saw a figure near his bed which he attempted to clutch, when it vanished. There never was any appearance of delirium—the tone of the muscles was unaffected, and the health in other respects was little impaired. The patient had been dining in company for a succession of nights, and I know he was in the habit of smoking a good many cigars. His whole appearance at the time of the attack indicated congestion of the cerebral vessels, and it will not have escaped notice, that the symptoms came on when he had commenced a course of abstinence. The stomach was disordered; and there were signs of congestion in the liver."

13. *Resuscitation from drowning*.—Very erroneous notions continue to prevail relative to the period that an individual may remain submerged, and resuscitation take place. Mr. George Wooley, one of the medical assistants of the Royal Humane Society, and whose residence in the vicinity of the receiving House in Hyde Park, has occasioned his being called upon, he says, to treat most of the cases of submersion requiring medical aid, which have occurred in the Serpentine for some years past, expresses doubts whether the Society "possesses any well authenticated record of a case of a single recovery after the body had been submerged more than five minutes."—*Lancet*.

14. *Rupture of the left ventricle of the Heart*.—A man, sixty years of age, employed in watering the streets of Paris, fell down suddenly, and instantly expired. On examination, at the Hôpital Neckar, the next day, an irregular rupture of about 3 lines, at the middle part of the posterior face of the left ventricle, was found. This ventricle was dilated, its parietes thinned and softened, but presenting no trace of ulceration. There were some points of ossification at the base of the mitral valve.—*Bulletin Gén. de Thérapeutique*, 15th Aug. 1835.

15. *Encystment of the Liver*.—In the report of the proceedings of the Anatomical Society, (*Archives Generales*, April, 1835,) it is stated that one of the most curious alterations exhibited to the Society, is the conversion of the liver into a compact yellow mass, more than thrice the ordinary volume of the organ, and throughout the substance of which, non-encysted points of a tissue that is evidently erectile were found. The encysted condition of the liver, either partial or general, is one of the most frequent changes that have been exhibited to the Society, and opportunities have presented of observing it in all its shades, from granular encystment in which each grain appears to have its own cyst, to the lobular encystment, or subdivision of the liver by fibrous bands which isolate variously sized lobules and give the whole organ the embossed appearance so usual in scirrhus. In one case you may have remarked the great thickness of

the fibrous lamellæ that thus formed the partition of the hepatic tissue. You have also seen the general encystment of the organ in a case of ascites, in which the liver turned upon itself, and, enveloped in very thick false membranes, seems to have been condensed by some powerful pressure. In all the cases of encystment, partial or general, you could not fail to remark the general or partial atrophy of the organ, as well as the alteration of the tissue.

To what is this singular tendency of the liver to encystment to be attributed? Is it owing to its anatomical texture or to the specific nature of its diseases? The fibrous septa are the result either of some new production or the consequence of an atrophy of the glandular grains, or lobules, whose disappearance would allow the fibrous lamellæ, previously separate, to join each other; or lastly, they may be a consequence of the presence of the specific membrane, to which the name of Glisson's capsule is applied.

A rare and curious alteration of the liver was presented by M. Cezalis. It had a compactness, colour, and fracture, resembling those of yellow wax.

M. Stenski exhibited a scirrhus of the liver, with dilatation of the vena portæ. —*Lond. Med. and Surg. Journ.* June, 1835.

—

16. *Extraordinary case of Generation of Air in the inferior venous system.* By Mr. RALEIGH. G. G. a stout youth, lately arrived from England, of about 19 years of age, was sent to Hospital on the evening of the 8th of August last, in consequence of having suffered for several days, from inflammation, on the inside of the left leg; the affected part, presented a patch of about the size of a man's hand, and extended from the middle of the calf, nearly down to the ankle, the integument, at the central point of this spot, was of a dark purple hue, from which, it assumed a red colour, gradually fading towards the circumference, which was clearly defined; the pain, which had been constant, and acute, was confined to the discoloured portion, which was exceedingly tender, and hot—the whole limb below the knee, was rather warmer than natural, but was not much swollen; pain did *not* extend up the thigh, but the glands at the groin, were somewhat enlarged, and tender,—the tongue was coated, but he was free from any general febrile symptoms. xx Leeches near the edge of the inflamed patch. Cold lotion to the leg—R. Calomel, gr. vi.—Pulv. Jalapæ Comp. 3i.—Stat. Sumend.

9th A. M.—The redness, and pain of the leg, much abated, bowels acted on three times in the night. xij Leeches, and Lotion—P. Jalapæ C. 3j. Stat.

10th.—Improving. xiij Leeches and Purgative.

11th.—The inflamed patch on the leg, has nearly entirely disappeared, the limb cool, free from pain, and the glands at the groin, although enlarged, are not tender on pressure. vi Leeches to the leg—Lotion, and Pulv. Purg.

12th.—During the night the limb again became highly inflamed, and the patch on the inside of the leg, assumed a very angry appearance, and was exquisitely painful, and tender; above the knee, the limb is quite cool, and no uneasiness is experienced along the inside of the thigh, or at the groin. His skin is hot; and pulse frequent, and rather full. Bleeding to faintness—R. Calomel, gr. vi.—P. Jalapæ Comp. 3j. directly. Noon.—Pain continuing. viij. Leeches were applied to the leg—and a dose of Calomel administered.

4 o'clock, P.M.—During the afternoon, he has been exceedingly restless, and has now an anxious countenance, a small, rapid pulse—the respiration hurried, and abdomen distended, the spot on the leg is much less hot, or painful, the cuticle has separated from it, and small vesicles have formed round its margin, the whole limb, appears rather larger than natural, but is not tense, and is of healthy colour, and temperature; he complains of feeling very faint, and his skin is suffused with perspiration. The whole limb enveloped in a poultice. R. Calomel, gr. x.—P. Antim. gr. iv.—Ex. Colocynth C. gr. viij.—Stat. Sum.

As evening approached, the abdomen became more distended, the breathing more oppressed, the countenance livid, pulse rapid, and threaded; on the poultice being removed, the whole of the affected lower extremity, was observed to have increased in size, and become more hard, as was the case also, with the opposite limb—but their colour and temperature, continued natural; dyspnœa increased, and he died in the evening, as in a sate of suffocation.

Post-Mortem Examination, eight hours after death.—The countenance had a livid hue, and the mouth and nostrils, were filled with foam. The abdomen was

much distended, and the lower extremities more bulky than natural, of pale colour, and had a firm elastic feel, but communicated no sense of crepitation to the finger on pressure being made—the purple patch on the inside of the leg remained, and the cuticle was detached from its surface, the superficial skin peeled from the whole limb with unnatural facility. On cutting into the dark spot, the cellular structure beneath the integument, partook of the discoloration, and was *at this particular situation*, emphysematous; on continuing an incision along the inside of the thigh, in the course of the saphena major vein, an eruption of air took place, from the innumerable ramifications of the veins, divided by the knife, and red froth, was observed to issue, from their minute orifices, giving rise as the knife was carried on, to a peculiar crackling noise. At the ham, the absorbent glands did not appear to have undergone any change, but at the groin, on the integuments, which were much distended, being divided, the upper, and lower chains of inguinal glands, burst forth, and when exposed by dissection, presented a cluster of swellings, as large as pigeon's eggs, of a reddish, or ches-nut colour, and spongy consistence; when divided by the knife, the same crackling or popping noise was elicited, as when the knife was carried through any part of the integuments, of the two lower extremities, but in greater degree, and sounded more like the crackling of paper, when squeezed in the hand.

On the abdomen, and chest, being laid open, a most extraordinary condition of some of the viscera, was exhibited. The liver, and spleen, were so enormously enlarged, as to occupy nearly the whole front and sides, of the abdominal cavity; the intestines, which were nearly hidden, were in a perfectly healthy, and col-lapsed state, but on turning them aside, the kidneys were found to be at least twice their natural size. The chain of glands, passing from the groin and pelvis, in the course of the great vessels, up the lumbar spine, formed a line of tumours, varying in size, from a hazel nut to a large hen egg—and of the same red colour as those at the groin.

The pericardium seemed to fill the anterior part of the chest, the upper edges of the lobes of the lungs only, being made visible by the removal of the sternum.

I now proceeded to an external examination of the blood-vessels, to which I have as yet, avoided adverting. From the purple patch, on the inside of the left leg, I dissected the superficial veins; and found that they were all fully distended with air, having a semitransparent appearance, and exhibiting within their ca-libre, unconnected portions of blood. The deep seated veins, were in precisely the same distended state, and offered a great contrast in apparent size, to the arteries, over which they rose, so as completely to obscure them—following the course of the vessels from the foot, through the leg and thigh, and entering the pelvis, the iliacs, ascending vena cava, emulgent, hœpatic, splenic, together with all the minor branches, joining to form the ascending venous circulation, were distended to the utmost possible extent with air. On the brachial vein being laid bare, it appeared in the condition in which it is usually seen after death, as were also the external, and internal jugulars, and subclavian, collapsed, and contain-ing *no air*.

The pericardium was now carefully opened, when the heart, with right ven-tricle, and auricle presenting, and distended to an enormous size, was found to fill the bag, there being only about ʒss. of reddish fluid in it; the left auricle was collapsed. Unfortunately, before noticing the state of the pulmonary artery, I cut into the right auricle, on which a sudden gush of air took place, and the heart closed to its natural size; exposing the lungs, which now had a natural appear-ance, and admitted a view of the descending vena cava, which was in a perfectly flattened state. On removing the immensely inflated liver, and placing it on a table, air mixed with blood, issued in the shape of froth, in great quantity; and on incisions being made into the structure of this viscus, it escaped with a hissing noise. The same was the case with the spleen, and kidneys, in a diminished degree, but a division of the lumbar chain of glands, gave vent to a proportion-ately large quantity of air, and frothy matter.

The bulky viscera removed, attention was directed to an inspection of the in-ternal condition of the blood-vessels. The lining membrane of the ascending venous system, throughout such branches, as from their size easily admitted of examination, was of an unusually red colour, the inner surface of the right au-ricle, appearing to participate in a slight degree, in this more deep than natural

tinge; the lining of the posterior tibial vein, of the left leg, appeared to be of darker red colour, in the vicinity of the inflamed patch, than elsewhere; but this was *not* very decidedly marked, and the inner surface of the larger branches, and trunk of the saphena vein, was of much the same colour, as in others of the inferior venous circulation; in one or two situations, in the ascending vena cava, a very few minute vessels, were seen here and there, making a tortuous course, for about a quarter of an inch, along its inner coat, but the *general appearance*, was, as if a solution of vermilion, had been washed over the inner surface of these vessels; the colour heightened immediately on exposure to the atmosphere. The blood contained in the veins, was of a dark colour, its consistence completely broken up, unconnected, and mixed with bubbles of air.

The descending venous system, (including the veins of the head, and those of the membranes of the brain,) was in a perfectly natural state, but containing rather a large quantity of blood: no unnatural accumulation of fluid, hat taken place in the head, and the substance of the brain, seemed healthy.

The whole arterial system, was free from any detectable morbid indications.— *India Journal of Med. Science, Nov.* 1834.

---

17. *Observations on Continued Fever.* The *Edinburgh Med. and Surg. Journ.* for Jan. 7, last, contains the following interesting propositions by Dr. ROBERT PERRY, Physician to the Glasgow Fever Hospital, relative to continued fever as it occurs in the city of Glasgow Hospitals. This fever seems to resemble the spotted fever, or typhus of this country, and to be distinct from the typhus described by Louis.

"*1st*, That typhus fever is an idiopathic disease solely produced by contagion, that is, by the introduction into the system of a specific animal poison.

"*2nd*, That this specific poison is (as far as yet known) only generated in the human body during the course of this idiopathic fever.

"*3d*, That no other fever, arising either from general causes, as cold, fatigue, improper ingesta, local lesions, or marsh miasmata, is capable of generating this specific poison, or, in other words, producing contagious typhus.

"*4th*, That this contagious idiopathic typhus runs a certain course, which may be modified, but cannot be checked, and is distinguishable from all other fevers by certain symptoms, which in a greater or less degree are uniformly present during its course.

"*5th*, That the following is the usual course of the symptoms by which contagious typhus may be distinguished; viz. languor, nausea, frontal head-ache, rigours, loss of strength and appetite, followed by increase of thirst, quickened pulse, heat and dryness of skin, pain of back, or general soreness over body. The tongue becomes white at base and centre, florid at tip and edges, and on the fifth day from the first attack of head-ache, rigors, or nausea, a reddish, slightly elevated, but irregular papular* or measley eruption, is sometimes sparingly, at other times thickly scattered over the trunk and limbs, but rarely appearing on the face. As the fever advances in severity, the frontal head-ache abates, the tongue becomes dry and brown in centre, the eyes dull, heavy, and suffused, the pulse quicker, the thirst more urgent, the skin more dry and warm, and the mind disturbed. On the sixth day the eruption becomes more general and distinct, like rubeola, occasionally fading or disappearing suddenly, and becoming, as the disease advances, flattened, and of a darker or duskier hue; and when the fever is accompanied with congestion of the brain or lungs, or by thickening of the lining membrane of the bronchial tubes, it assumes that livid appearance usually called petechiæ. This eruption, when slight, frequently disappears in a few days, but more frequently is visible during the whole course of the disease.

"*6th*, That simple unmixed contagious typhus unsually continues for fourteen days from the first attack, when the febrile symptoms abate, the eye becomes clearer, the skin softer, and the mind composed, with less thirst. There is often a slight abatement of the symptoms on the tenth day, and particularly in children, at times nearly complete.

"*7th*, That when the febrile symptoms continue beyond the fifteenth day without abatement, local lesions exist, to which must be attributed the longer continuance

---

* The term papular does not convey a correct idea of the eruption, as it is not pointed; but I do not know a better to substitute for it.

18*

of the febrile symptoms. The appetite frequently continues defective till the twenty-first day, when all the functions resume their healthy action.

"8th, That contagious typhus is often to be met with in combination with other diseases, usually of a local character, as of the lungs, the mucous membrane of the stomach and intestines, more particularly the aggregated glands of the ileum, or the membranes of the brain.

"9th, That by the local diseased acfion of the parts abovementioned, the febrile action of the system is kept up; but the character of the disease is changed, and in such cases it frequently goes on to a fatal termination, or abates upon the twenty-first day from the commencement of the disease.

"10th, That between the ages of seven and fifty, sixteen out of twenty are sus- ceptible of being affected by contagious typhus, if exposed to the contagion, and not protected by having previously had the disease; but that children under five years are rarely affected with contagious typhus, and under two, may generally continue to suckle or sleep with the mother labouring under typhus, without catching the disease.

"11th, That contagious typhus is an exanthematous disease, and like small- pox, measles, and scarlet fever, during its course produces some change on the system, by which the individual having once undergone the disease, is (as a ge- neral rule) secured against a second attack, and may with impunity expose him- self to the contagion of typhus, if he continues to reside in the same country in which he previously had the disease. In those cases which are exceptions to the general rule, the disease appears in a mild and modified from, the crisis taking place on the seventh, ninth, or eleventh day.

"12th, That contagious typhus never exists in combination with any of the other contagious exanthematous diseases.

"13th, That in every case of pure typhus, the blood undergoes, during the disease, a considerable change, becoming darker in colour, and in many cases losing the power of coagulating when drawn from the arm, and in all cases being more loose in texture; and when death ensues during the course of the disease, the blood contained in the heart and large vessels is dark and fluid.

"14th, That inflammation of the membranes of the brain, of the bronchia, and of the mucous membrane of the stomach and intestines, and various febrile af- fections arising from cold, fatigue, improper ingesta, &c. &c. more particularly disease of the aggregated glands of the ileum, and the mucous follicles, often termed *dothinenteritis* or *gastro-enteritis*, have been too often confounded by me- dical practitioners with typhus fever, though they are characterized by dissimilar symptoms, and require a very different mode of treatment.

"15th, That the congested state of the vessels of the brain, the serous fluid on its surface, and the dark fluid state of the blood, are the most common morbid ap- pearances to be met with in *post mortem* inspections of those who have died of contagious typhus, and in many cases the only morbid appearances which are to be found; and the next in frequency is the thickening, or darker appearance of the bronchial lining membrane, and the third in order is the diseased state of the mucous membrane of the intestines, more particularly that of the aggregated glands of the ileum. The relative proportion of these states to each other vary considerably, according to the state of weather, as to heat, dryness, &c.

"16th, That *dothinenteritis*, or enlargement of the mucous follicles of the small- er intestines, and enlargement and ulceration of the aggregated glands of the lower third of the ileum occur in combination with contagious typhus, and are to be met with in about one in six of those who die from typhus. It also exists as a disease *per se*, and is characterized by the following symptoms;—quick irritated pulse, tongue dry and florid, more particularly at the tip, often fissured in the centre, urgent thirst, partaking of the remittent character; the face is alternately flushed and pale, particularly one or both cheeks. The disease commences fre- quently with diarrhœa, which lasts from three to four days, when it ceases, and the stools become for a time natural; the patient complains on pressure of pain in the epigastric, or in the right and left iliac regions; and the abdomen is slightly tumid, and has a puffy feel. As the disease advances, the patient is often seized with vomiting of a greenish fluid, which is always an unfavourable symptom. The dull suffused eye, frontal head-ache, low delirium, and decided *anorexia*, so characteristic of typhus, in nineteen cases out of twenty, are in this disease absent. This disease may exist in every degree of mildness or severity, having no regular

period of termination; it may run on for two, three, or even four weeks, and terminate in gradual restoration to health, without any sensible crisis; or the patient may sink under it from exhaustion, or by hæmorrhage from the bowels, or it may end by some of the ulcers of the aggregated glands of the lower third of the ileum, penetrating the coats of their intestines, and part of their contents being effused exciting *peritonitis,* under which the patient sinks in the course of two, or, at most, three days.

"The less compressible state of the pulse, the clearness of the eyes, the flushing of the cheeks, the more florid, parched, and fissured state of the tongue, the comparative absence of the frontal head-ache, and the complete absence of the typhus eruption, sufficiently distinguish this disease from contagious typhus. To a practised eye, the colour of the face, the flushing of one or both cheeks, the clear eyes, and the irritative state of the pulse, are sufficient to distinguish this diseased state from typhus. When in conbination with typhus, all the symptoms are aggravated in severity after the fourteenth day, and become more distinctly marked. This disease is an equally frequent accompaniment of small-pox as of typhus, and presents the same morbid appearances on inspection after death. In those who have died of this disease of the mucous membrane of the intestines, the blood in the heart and large vessels presents the same appearance as in those who have died of chronic inflammatory disease, in this respect differing from its appearance in typhous cases.

"The observations on which these facts are founded were not made to establish any theory. The reports of the cases and the necroscopic inspections are made in the presence of all who chose to witness them. The facts only are stated, and all are at liberty to draw from others their own conclusions.

"These sixteen propositions, the result of careful observation in upwards of 4000 cases, and 300 necroscopic inspections, are considered as facts fully ascertained. The following are believed, on sufficient evidence, but which cannot as yet be adduced to prove them.

"1*st,* That typhous fever does not become infectious before the ninth day, and is most contagious when the patient is in the convalescent state, when cuticular desquamation usually occurs.

"2*nd,* That the contagious poison is chiefly spread by the desquamation of the cuticle during the period of convalescence.

"3*d,* That the earliest period of the disease making its appearance after exposure to contagion is eight days, more frequently fourteen, and sometimes as long as two months.

"4*th,* That in every case of genuine typhous fever, the vessels ramified upon the *pia mater* are more or less enlarged or congested, and throw out a serous fluid betwixt the convolutions of the brain and on its surface, which to a certain degree compresses the organ, and impairs its functions, and, along with the morbid state of the blood, is frequently the cause of death in this disease."

18. *On the Diagnosis of some diseases of the thorax in which there is an accumulation of the products of disease within that cavity.*—Dr. W. STOKES communicated to the medical section of the British Association at their meeting in Dublin a paper on this subject. Without entering into the question, Dr. Stokes observed, as to whether organic diseases of the thoracic viscera are followed in all cases by some alteration in the volume of these organs, we may divide cases of thoracic disease into two classes; first, those in which there is no manifest alteration; and secondly, those in which there is a manifest alteration of volume. This division, however, is merely arbitrary. These enlargements are of two kinds; either an actual increase of volume of the parenchyma of the lungs, or a distention of its serous covering. The affections in which these occur, may be termed diseases of accumulation. Another, and more important division, is that founded on the effect of disease, in increasing or diminishing the quantity of air within the thorax. If we take empyema on the one hand, and dilatation of the air cells and pneumothorax on the other, we find that these diseases of accumulation may occur with a diminution or an increase in the quantity of contained air, so that the diagnosis depends, first, on the evidence of accumulation, and next on the physical properties of the accumulated matter. In empyema, there is accumulation and pressure from a non-elastic fluid; in emphysema and pneumothorax, from an elastic medium. In empyema we have, in addition to signs of displacement, proofs of a diminution

in the quantity of contained air; in the other affections, we have also displace-
ment, but the quantity of air is increased.

There are, however, some very interesting points of difference, connected with
the results of these diseases on the walls of the thorax. In empyema, the dilata-
tion is most remarkable in the inferior portion of the lung; in empyema, in the
superior. A still more remarkable difference appears to be connected with the
effect of these two diseases on the muscular parietes of the chest. In empyema,
the muscular parietes of the chest yield, in a very obvious manner, to the effects
of the disease; the intercostal spaces are obliterated, the affected side enlarged,
and the diaphragm depressed. But in emphysema, the disease may be carried to
a great amount, without producing these appearances. Now what is the cause
of these remarkable differences? To explain this, was the object of the present
communication.

It would appear that the explanation of the dilated state of the intercostal
muscles was to be sought for in the circumstances attendant on pleuritic inflam-
mation. It is a well established fact, that when muscular structures are in close
connexion with inflamed tissues, their functions become impaired; and in such
cases we observe, first an increase, and afterwards a diminution of innervation.
In the first place, we have pain, spasm, and irritation; in the second, weakness
and paralysis more or less complete. Under the latter condition, the muscular
fibres lose their contractility. Dr. Stokes here referred to the researches of Dr.
Abercrombie on Ileus, in which the morbid appearances were found to be confin-
ed to the dilated and not to the contracted parts. With respect to the evidences
in favour of the opinion, that the displacement of the thoracic muscles was the
result of paralysis, he stated, that in the first stage of pleuritis we have pain on
inspiration, without protrusion of the intercostal spaces; but in the more advanc-
ed periods, pain is absent and respiration more free, but the intercostal spaces
yield, and we have smoothness of the side produced. The latter circumstances
corresponds with the minus degree of innervation, or paralysis. The next evi-
dence is, that mere pressure is not sufficient to produce this. If we examine em-
physema or hydrothorax, we shall find that in both there is strong pressure exer-
cised on the muscular parietes of the thorax, as shown by the enlargement of the
chest; yet the intercostal spaces are not necessarily dilated. The last point of evi-
dence is the sudden yielding of the diaphragm, which Dr. Stokes had observed
in certain cases of empyema. This yielding was as extensive as it was sudden,
and was not accompanied by evidences of increase of effusion. He thought,
therefore, that he was borne out in the conclusion, that the protrusion of the in-
tercostal spaces and the depression of the diaphragm are the result of a semi-
paralysed state of these organs.

This principle (if established by future investigations) might be applied to the
investigation of other forms of thoracic disease. Of pleuritis he had already
spoken; it would be necessary to make a few observations with respect to bron-
chitis and pericarditis. In all these the suffering of the muscular tissue in the
first stage has been recognised, but the effects of inflammation in the advanced
condition had been neglected. In bronchitis it is a question how far the paralysis
of the circular fibres of the bronchial tubes, may account for the accumulation in
those tubes which is so commonly followed by asphyxia, in cases of bad catarrhal
fever. In such cases we often see the patients dying from the effects of the ac-
cumulation in the lung, although there is no remarkable general prostration, and
the individuals possess a considerable degree of muscular strength, so far as the sys-
tem of animal life is concerned. Again, it might be inquired, how far, in dilata-
tion of the bronchial tube, this condition may have existed. All writers seem
to have acknowledged that Laennec's explanation of this occurrence is imperfect
and unsatisfactory. Lastly, in cases of pericarditis, this principle (if admitted)
would serve to explain the fatal termination of the disease. How accurately do
the symptoms of the advanced stage of pericarditis, the syncope, the weakness,
the failure of the pulse, correspond with a more or less paralysed condition of the
heart? How singularly do the phenomena of the first stage correspond with the
increase of innervation which we know to be the first effect of inflammation of
the muscular structure? The same principle would serve to explain the super-
vention of active aneurism on the advanced stages of pericarditis. In the weak-
ened state of the heart it yields to the pressure of the blood, and by degrees its
cavities become distended. On the hydrostatic principle the force of this disten-

sion must be every moment increasing, and, of course, the progress of the disease will be proportionally rapid. Now, suppose that the inflammatory process ceases; the muscular fibres of the heart recovered their tone, but they have an increased duty to perform; and from the well-known law in physiology their growth is increased. To dilatation is added hypertrophy, and thus active aneurism is established. This theory differed from that of Andral, who assumes that the hypertrophy takes place from the first, and omits the possibility of an intervening paralytic condition of the heart.

The last point to which Dr. Stokes referred, related to the phenomena of respiration in Laennec's emphysema. If we take two cases of disease of accumulation, as for instance empyema and dilatation of the air cells, and suppose that in one the chest yields *pari passu* with the enlargement of the lung, while in the other it is rigid and unyielding; it is plain that the physical conditions and signs must be different. This appears to afford an explanation of the feebleness of respiration in dilatation of the air cells. If the quantity of air in the lung be so great as to keep it forcibly distended even after expiration, it is obvious that on the next inspiratory effort, the volume of air which enters will be minus the expansion of the lung from its distending force. If this be true, and this cause be the principal source of the feebleness of respiration, it should follow, that if the chest yielded easily to the enlargement of the lung, the disease would occur without the characteristic sign; in other words, the feebleness of respiration would be more a measure of the compression of the lung than a direct sign of Laennec's emphysema. Dr. Stokes brought forward an illustrative case, and concluded by stating, that these observations and suggestions should be tested by future investigation.—*Dublin Journal of Med. and Chem. Sc. Sept.* 1835.

MATERIA MEDICA.

19. *Corigeen, or Irish Pearl Moss.*—This article, is at present, getting into such general use, and is so valuable an article of diet in many cases, that the following account of its dietetic properties, and mode of preparation, by J. Bass, Pharmaceutic chemist, cannot fail to interest our readers.

"This valuable moss, commonly known by the above names, has long been highly esteemed by the peasants on the western coast of Ireland as a dietetic remedy for various diseases; more especially for consumption, dysentery, rickets, scrofula, and affections of the kidneys and bladder. Dissolved by being boiled in water, it forms a thick jelly, more pure and agreeable than that produced from many other vegetables, and the jelly made from it is found to agree better with the stomach than any prepared from animal substances. A decoction of the moss, made by boiling half an ounce in a pint and a half of water, or milk, until reduced to a pint, is recommended as food for children affected with scrofulous or ricketty diseases, for such as are delicate and weakly, and for infants brought up by hand, or after weaning. As an article of diet for invalids generally, it is equal if not superior to arrow root, sago, and tapioca, being highly nutritious, bland, and easy of digestion.

"The corigeen appears to possess qualities similar to the Iceland moss, but without its unpleasant flavour, and the quantity of nutritious jelly it produces, is truly surprising.

"*Directions for using the moss medicinally.*—Steep a quarter of an ounce of this moss in cold water for a few minutes, then withdraw it, (shaking the water out of each sprig,) and boil it in a quart of new or unskimmed milk, until it attains the consistence of warm jelly—strain and sweeten it to the taste with white sugar or honey, or, if convenient, with candied Eryngo root; should milk disagree with the stomach, the same proportion of water may be used instead. The decoction made with milk is recommended for breakfast to consumptive patients; and that with water will be found a most agreeable kind of nourishment, taken at intervals during the day, the flavour being varied with lemon juice or peel, Seville orange juice, cinnamon, or wine of any sort most congenial to the palate.

"The decoction in water is also taken for the relief of cough, at any time in the course of the day, when it is troublesome; and it is, for this purpose, simply sweetened with honey.

"In dysentery, the decoction, either in milk or water, may be administered with equal advantage, and in addition to the sweetening matter, (if a tea-spoonful of the tincture of rhatany be mixed with each cupful, a tone will thereby be given to the intestines, at the same time that nourishment will be conveyed to the system, and irritation prevented: a large tea-cupful of the decoction may be taken three or four times a day.

"As a pleasant strengthening food, boiled with milk, and strained, with the addition of a little sugar, it is unrivalled for infants. Delicate persons take it in this way for breakfast and supper with the happiest effects."

20. *Method of Making Leeches Bite exactly where we wish.*—This method, suggested by Dr. ERNST ELBEN, consists in cutting small holes in a piece of blotting paper, corresponding to the points in the skin to which we wish the leeches to attach themselves; then moistening the paper, and applying it to the skin in such a way that the holes are exactly over the indicated points. The leeches placed on the paper creep about until they come to the openings, where they attach themselves.—*Medicinische Zeitung*.

21. Dr. CANQUOIN's *Formulæ for Preparing the Phagedenic Paste:*—
No. 1. Chloride of zinc one part, wheat flour two parts.
    2. Chloride of zinc one part, wheat flour three parts.
    3. Chloride of zinc one part, wheat flour four parts.
    4. Chloride of zinc one part, chloride of antimony half a part, wheat flour two parts and a half.
Twenty-four to thirty drops of water are to be added for each ounce of chloride.

The preparation of the phagedenic paste requires the utmost care and attention; hence, to procure it properly, the following instructions must be scrupulously followed. The chloride of zinc, reduced to powder, is to be mixed, as quickly as possible, on a slab, with the given quantity of flour. One half of the mixture is immediately to receive its proportion of water, and to be worked up progressively with a spatula, until it forms a homogeneous paste-like honey. This paste is to be brought to the desired stiffness by trituration with the remainder of the dry ingredients, well beat for a few seconds, and then rolled out into cakes or wafers, of from half a line to four lines in thickness.

The quantity of water must be proportionally augmented, according to the increased amount of flour in the second and third formulæ.

The antimonial paste, No. IV., is to be moulded into a crayon shape; because, as it preserves constantly the consistence of soft wax, a suitable thickness can always be given to it, so as to adapt it to the form of certain cancerous tumours, presenting inequalities of surface.

As, however, the flower employed in the above formulæ consists of starch, gluten, and vegetable albumen, it will produce a complex combination with the chloride in the phagedenic paste, which may blunt or interfere with its erosive action; or possibly undergo some fermentative change when applied to an ill-conditioned ulcer, and the viscidity of the compound give rise to more or less difficulty in the manipulation. It therefore occurred to Dr. A. Ure, of Glasgow, that if some inert, inorganic powder were substituted for the vegetable matter, capable of absorbing and retaining a sufficient quantity of moisture to form a paste, which should be a simple mechanical admixture, it would then be possible to turn to account the full escharotic powers of the chloride. The anhydrous sulphate of lime, in impalpable powder, will be found to realize the above conditions. Mixed with the chloride of zinc, in the proportions already indicated, a paste-like putty may be obtained, after these have been well incorporated together with a few drops of water.*

The paste so prepared is perfectly plastic. In its composition the calcareous sulphate seems to perform the part of a porous medium, which allows the escharotic gradually to exude into the morbid texture. In proportion as it is abandoned by its deliquescent ingredient it acquires a firmer consistence, until at length

*Special care must be taken to prepare a pure sulphate, by calcining the crystallized gypsum at a gentle heat in an oven; for the Paris plaster of the shops is often sophisticated with chalk or whitening, which would immediately decompose the metallic chloride, and impair its qualities in a greater or less degree.

it becomes concrete, and constitutes an impervious case for the eschar.—*London Medical Gazette*, 19*th December*, 1835.

22. *Method of using Dr.* CANQUOIN's *Phagedenic Paste.*—Where the integuments are sound, the epidermis should be removed by means of a blister; and on the following day one or other of the preparations described in the preceding article, corresponding to the thickness of tissue to be destroyed, is to be applied to the cutis of the diseased part. The sensibility of the surface must also be considered; for should it possess but a feeble degree of vitality, the most powerful form is to be preferred.

The paste No. 1. four lines thick, applied during four days, is capable of producing an eschar of from one and a half to two inches in depth. The same paste, three lines thick, applied during three days, will furnish an eschar of one inch, at least, in depth; the same compound, two lines thick, will in two days determine an eschar of not less than half an inch. The paste No. I., of one line, will yield, in twenty-four hours, an eschar of three lines. Finally, the paste, No. I., of half a line, will produce, in the same time, an eschar of at least one line.

These changes will manifest themselves with the above precision only on tissues endowed with a considerable share of sensibility, and of which the consistence is nearly normal. In the gristly (lardacé,) almost fibro-cartilaginous degeneration, about one-third is to be deducted from the thickness of the eschar abovementioned.

No. II. is employed in cases of cancerous ulceration and superficial carcinoma, which are attended with much pain.

No. III. is eligible in every species of cancerous affection, occurring in nervous subjects who are incapable of supporting the violent pain which the preceding more concentrated escharotics might occasion. It is so much less productive of suffering, as it is slower in its action.

Lastly, No. IV. the antimonial paste is best adapted to nodulated cancerous tumours, for which a more decided escharotic action is required.

These preparations, applied over a denuded surface, excite, in a few minutes, a feeling of heat, which, ere long, rises to a burning heat; which unpleasant symptoms may be relieved by an opiate enema.

When the operation of the paste is complete, it may be gently taken off, and the eschar covered with an emollient poultice until its separation, which usually happens, as formerly stated, from the eighth to the twelfth day, according to the thickness of the layer employed. The application is to be repeated again and again till the whole morbid structure is removed; after which the surface is to be treated with simple digestive ointment; or, in case of acute cancer, with cataplasms, until the cure is finished.

In certain modifications of carcinomatous tumours that are voluminous and prominent, Dr. Canquoin, instead of applying the caustic on the anterior segment, surrounds the base with a ring of paste two lines broad and four deep.

Should the carcinoma present a central depression, its destruction may be accomplished by using the phagedenic paste in a spiral form.

The chloride of zinc will probably form a valuable means of curing incipient cancerous ulcers of the uterus. These, in their early stage, may be looked upon as purely local affections, since Bayle has demonstrated, by numerous dissections, that the tissues of the organ are perfectly sound at the distance of two or three lines above the solution of continuity. In some instances it is reported that they have been healed by the topical use of the acidulated nitrate of mercury, as also by the caustic potash: but as both have been objected to in practice, the former from its tendency to spread over the healthy parts and excite inflammation, the latter because it is too uncertain in its effects, corroding too profoundly, and giving rise to fatal inflammation, amputation of the cervix has come to be regarded, by many, as the sole alternative for eradicating the disease. Now, the chloride of zinc, liable to none of the inconveniences that have been imputed to these other caustics, employed in its most concentrated form, will furnish its characteristic dry, easily definable eschar, destroying the morbid parts, and leaving behind a healthy surface, which will rapidly cicatrize: thus saving the patient the necessity of submitting to an operation which, although unaccompanied by much pain, is yet most repugnant to her feelings.

Cauterization with the chloride must likewise prove advantageous in carcino-

matous affections of the tongue, lips, and of the rectum, where arsenic, from its powerful poisonous qualities, is totally precluded.—*Ibid.*

23. Dr. Canquoin's *Resolvent Pomade.*—The following ointment is recommended for effecting the destruction of extensive scirrhous surfaces, previously flattened by long-continued methodical compression, as also of certain dense scirrhi. Take of oxygenated pomade, prepared by triturating eight parts of boiling axunge with one of nitric acid, one ounce; melt this by a gentle heat, and add to it three drachms of the acid subdeuto-nitrate of mercury. Increase the heat a little, till the nitric acid become decomposed, so as to proxygenate the pomade, and bring the salt into intimate union with it. The ointment, when well prepared, is very hard, and of an orange-yellow colour.

Dr. Canquoin describes the case of a woman affected with a scirrhus of one half of the face, who had been previously treated for it, but without benefit; and she seemed doomed to become, ere long, a victim to the frightful malady. However, thirty-five days' application of the above ointment sufficed to work a cure, without the slightest trace being left.—*Ibid.*

24. Dr. Canquoin's *Maturative Ointment.*—Dr. Canquoin has procured in two or three months time, and even less, a softening and suppuration of indolent scirrhous tumours of a violet-red hue, by the following application. Take of the acetic infusion of the bark of spurge laurel, ℥iss.; of molasses, ℥iss.; olive oil, ℥j.; ox bile, ℥ij. Mix together, and reduce, by the aid of heat, to the consistence of an ointment. Withdraw the heat, and add, unguent. basilic. ℥iss.; cerati fusci,* ℥iss. Mix the whole well together, and incorporate with each ounce a drachm of the subdeuto-nitrate of mercury.—*Ibid.*

THERAPEUTICS.

25. *Treatment of Itch.*—Dr. Lison, physician to the hospital of Donzi, lauds, in a communication in the *Journal Gen. de Therapeutique,* (15th July, 1835,) the efficacy of the following ointment for the cure of itch. ℞. Litharge ℥j.; olive oil ℥iv. Mix, place upon a moderate fire, and stir until the litharge is well dissolved, and the ointment acquires a slight blackish tint.

Half an ounce is to be used in friction to the hands, feet, and arm pits, morning and night.

26. *Sulphuret of Potash in Asthma.*—An individual labouring under a severe attack of spasmodic asthma, applied to Dr. Carusi, who, having ordered the aqua lauro-cerasi, internally, and frictions with tartar emetic ointment, without success, directed sixteen grains of the sulphuret of potash, rubbed into a paste with honey. This quantity was divided into four portions, one of which was given three times a day. After the administration of the last dose, the asthma entirely disappeared, and the cure was complete.—*Lond. Med. & Surg. Journal,* Nov. 1835.

27. *On the Persesquinitrate of Iron in Chronic Diarrhœa.*—Dr. Robert J. Graves in one of his clinical lectures, states, that he has lately used in chronic diarrhœa, with very considerable success, the sesquinitrate of iron, a preparation introduced by Dr. Christison. "The combination of iron with nitric acid forms a remedy," he observes, "possessing tonic; and, at the same time, astringent powers, and hence peculiarly well adapted for the treatment of certain forms of chronic diarrhœa and dysentery. You will be consulted by females of a delicate and weakly habit, who frequently exhibit symptoms of nervous derangement, such as palpitations, sleeplessness, and head-ache, who are easily excited or alarmed, have a tendency to emaciation and paleness, and have little or no appetite. Combined with these general symptoms, you find that they have been labouring under diar-

*Or Onguent de la Mere, prepared with litharge, axunge, butter, and mutton suet, of each 25 parts, yellow wax 18, and black pitch 8.

rhœa for weeks, and even months, and that this, with the other causes of debility, has rendered their condition exceedingly uncomfortable. You will also be informed by the patient, that she has tried many remedies without benefit, and that she is extremely anxious to have something done to give relief; and hence it is a matter of importance to be acquainted with any remedy which may be likely to prove serviceable in such emergencies.

"It would appear that this form of diarrhœa does not depend on an inflammatory condition of the stomach and intestinal canal, for the indications of inflammation are absent, such as pain, tenderness on pressure, thirst, redness of tongue, and severe or continued griping. It would rather seem to be connected with congestion of the mucous membrane of the digestive tube of a passive nature, and resembling the scrofulous; it is also of an unmanageable character, and very seldom amenable to the ordinary modes of treatment. The common astringent remedies totally fail; chalk mixture, kino, rhatany root, and catechu, are useless, and in such cases it has been observed that opium is generally injurious. If you prescribe opium it certainly checks the disease for a time, but this temporary relief is accompanied by debility, malaise, restlessness, and many other uneasy symptoms, and the diarrhœa soon returns, and is as bad as ever. The medicine which I have found most effectual in such cases, is the persesquinitrate of iron, in the form recommended by Dr. Christison. With it I have succeeded, within the last two months, in curing two cases which had been exceedingly obstinate and of very considerable duration, the disease having in one case resisted all the efforts of medical skill for seven months, and in the other for two years. Seven or eight drops of the liq. ferri persesquinitratis, increased gradually to twelve or fifteen in the course of the day, was the quantity prescribed in both cases. In the course of four days a slight diminution of the diarrhœa was perceived, in a fortnight the patient felt much better, and in a month or five weeks it had disappeared altogether. This took place without being followed by any bad effects; there was no swelling of the stomach, no tympanitis, no tormina, no restlessness or nervous derangement; the patients recovered their health and strength, and the cure was at once safe and permanent.

"The effect of this remedy admits of an explanation on either of two grounds. You are aware that nitric acid exercises a very powerful influence over many morbid discharges. In chronic diarrhœa or dysentery, and in a certain form of diabetes, it is one of the most efficient and appropriate medicines which can be prescribed. We can, therefore, understand its peculiar adaptation to the case of which I have spoken. The nature of the complaint requires a tonic as well as an astringent; and you all know that nitric acid is used as a tonic in many cases attended with debility and emaciation. With respect to iron, its mode of action is equally intelligible. Many of the salts of iron exert a very remarkable influence on the conditions of mucous membranes. The sulphate, tartrate, and many other preparations, are prescribed with great advantage in chronic fluxes from mucous membrane; hence the benefit so frequently derived from the use of Griffiths' myrrh mixture in the treatment of chronic bronchitis characterized by a supersecretion from the bronchial membrane, unaccompanied by fever. You perceive, then, both the medicines which enter into the composition of persesquinitrate of iron are well calculated to check morbid discharges and strengthen the tone of the system. The only objection to this remedy is, that it is apt to spoil: if kept longer than a week it is decomposed, and hence you should always take care to have it quite fresh when you prescribe it, in order to secure its full operation."—*London Medical and Surgical Journal*, 23d *May*, 1835.

28. *Observations on hoarseness or loss of voice, from sore throat or slight laryngeal inflammation.* By ROBERT J. GRAVES, M. D.—A form of hoarseness is frequently observed in growing boys or girls, which assumes a very chronic character, and often resists for a long time almost every form of treatment. A boy gets cold, followed by sore throat and feverish symptoms, which may last for a few days, and then disappear under the use of aperient medicines, or perhaps without any interference on the part of the parents or the physician. The feverishness and soreness of throat subside, but the hoarseness remains, and the boy can speak only in whispers. This condition may last for weeks and even months without any other symptom whatever; the patient has no cough or difficulty of breathing,

his appetite is good, sleep and digestion natural, and there is no appearance of emaciation. The only thing amiss with him is the impairment of voice, and this continues so long that it gives rise to a considerable degree of anxiety on the part of his parents. When you examine the fauces you find no appearance of inflammation in the mucous membrane, and there is no superficial or deep-seated tenderness in the region of the larynx. How are you to treat this form of disease? It depends on a relaxed and weakened state of the chordæ vocales, and perhaps the muscles of the larynx, the result of inflammation of an exceedingly chronic character, and will not be benefitted by leeches, or antiphlogistics, or low diet. The best thing you can do in such a case is to have recourse to the use of strong stimulant gargles. You begin with a drachm of the tincture of capsicum in six ounces of decoction of bark, which is to be used five or six times a day. After some time you can increase the quantity of tincture of capsicum, but you never need go farther than half an ounce in a six ounce mixture. In the next place, you will have recourse to frictions over the region of the larynx and external fauces with croton oil, which is much better adapted for such cases than tartar emetic ointment. The eruption produced by tartar emetic ointment is productive of a great deal of annoyance, and when the pustules break they prevent the boy from wearing his neckcloth. All the purposes of a counter-irritant are quite as well fulfilled by croton oil, and with much less inconvenience. The best form for using it is the following:—℞. Liniment: camphoræ comp. ℥j. Olei crotonis tiglii, ℳ xx. Of this mixture, a small quantity, say a couple of drachms, should be poured into a saucer and rubbed over the fore part of the neck night and morning, until a full crop of pimples appears. When these have dried up and desquamated, it should be again applied, and in this way a mild and manageable but very effectual degree of counter-irritation, can be kept up for any length of time. In addition to these measures (should the disease continue,) I would strongly recommend small doses of iodine and change of air. I have been induced to give iodine in such cases from observing that inflammation of a chronic character seems to have many points of resemblance to that which arises from scrofula. The last thing which I have to observe on this form of hoarseness is, that you should, particularly in the beginning, insist on the observance of strict silence, a point which is said to be exceedingly hard to be attained where the patient happens to be a female. In some cases all these means fail, and then something more energetic must be attempted. The inhalation of the vapour arising from tincture of iodine and tincture of conium added to hot water in a proper apparatus, has proved useful to some, but in all obstinate cases the sheet anchor is mercury exhibited internally, and by means of inhaling the fumes of hydrargyrum cum cretâ. In general it is necessary to continue the mercurials until the mouth is slightly touched, when the hoarseness will be found to yield. It is obvious that before we employ mercury in a case of chronic hoarseness, we must feel well assured that we have not to deal with a hoarseness arising from a phthisical tendency, for in this case mercury would prove injurious to the constitution. In such cases the stethoscope and percussion often afford valuable assistance, by showing that although the patient has had a hoarseness and cough for weeks or even months, yet there are no symptoms of tubercular developement in the lungs. The cough is only the result of laryngeal inflammation or irritation; the submaxillary glands and the amygdalæ are often slightly enlarged, the fauces are red, and the back of the pharynx is covered with irregular superficial excoriations.—*Lond. Med. and Surg. Journ.* May 30, 1835.

29. *On Sleeplessness, and its Treatment.* By R. J. GRAVES, M. D. (Extracted from a clinical lecture delivered at Meath Hospital, Dublin.) Sleeplessness is a very curious result of disease. It accompanies certain morbid conditions of the system brought on by actual disease, or by grief, care, and various other forms of mental disturbance, continues to harass the unhappy sufferer night after night, and frequently resists the most powerful and decided narcotics. I dot not intend to enter into any inquiries respecting the different states of the constitution in which it occurs; my purpose is merely to offer a few practical remarks on the more obvious and striking examples, with the view of illustrating the cases to which I have directed your attention.

There is a form of sleeplessness which is frequently the precursor of insanity,

and which has been well described by my friend Dr. Adair Crawford. The watchfulness in such cases is accompanied by the well known symptoms of incipient mental derangement, and its treatment is therefore inseparably connected with that usually resorted to in cases of threatened insanity, and embraces the employment of means moral as well as physical. Of these it is not my intention to speak; I may observe, however, that Dr. Crawford has found opium, gradually increased to very large and frequently repeated doses so as to produce sleep, the best remedy.

In the case of jaundice, the patient passed several nights without any sleep. He was just beginning to recover from the jaundice when this new symptom appeared, and I directed your attention particularly to the circumstance, because every manifestation of nervous derangement connected with jaundice should be carefully watched. It frequently happens that jaundiced patients sleep too much, and in some cases the disease is accompanied by convulsions, succeeded by coma, most alarming symptoms, and almost invariably the harbinger of a fatal termination. Dr. Marsh was the first who directed our attention to the great fatality of those cases of jaundice in which convulsions occur: I have seen but one instance of recovery. It was in the case of a gentleman labouring under icterus, very considerable hepatitis, with enlargement of the liver and anasarca, with ascites. He was treated by Dr. Osborne and myself, and had at least a dozen long and violent convulsive paroxysms, ending in coma, succeeded by temporary forgetfulness and fatuity. Repeated leeching of the right hypochondrium, active purgation, and mercurialization of the system removed all the symptoms of disease, and he slowly but perfectly recovered. A very able and original writer, Dr. Griffin of Limerick, has detailed the particulars of some interesting cases of this nature in the *Dublin Medical Journal.* You perceive, therefore, that in jaundice every thing denoting an unusual state of the nervous system, whether it be too much sleep, or too little, demands your attention.

In this man's case the jaundice was the result of an attack of hepatitis. We treated it with leeches, blisters, and the use of mercury, and in the course of a few days the stools became copiously tinged with bile, and symptoms of improving health appeared. At this stage, the dejections being bilious, but the jaundice still remaining, he began to exhibit symptoms of restlessness and nervous irritability, and finally became perfectly sleepless. Here, gentlemen, we had to deal with a new symptom, extremely harassing to the patient, and likely to react unfavourably on the original disease. As a preliminary step I determined to evacuate the bowels, and for this purpose I prescribed a purgative draught, consisting of five ounces of infusion of senna, half an ounce of sulphate of magnesia, a drachm of tincture of senna, and a scruple of electuary of scammony. My object was to purge briskly, and then give a full narcotic. In all cases of jaundice depending on hepatic derangement, after you have succeeded in producing bilious evacuations, you should never omit prescribing an active aperient every second or third day for the space of ten days or a fortnight, with the view of carrying off the remains of the disease so as to prevent the occurrence of a relapse. Hence you will find such cases very much improved by the use of Cheltenham water, taken every day for three or four weeks *after the reappearance of a bilious tinge in the alvine discharges.* The stimulus of the purgative causes an increased flow of bile into the intestines, which removes the hepatic congestion, and carries off what is popularly termed the dregs of the disease, and promotes a rapid and complete recovery. It is a simple but successful practice, and I would advise you never to omit its employment in cases of this description.

With respect to purgative mixtures, I may observe that you should prescribe a larger quantity of the infusion of senna than is generally ordered, if you wish to secure its certain and decided operation on the intestines. Hospital nurses, who reason from facts and experience, know this, and when directed to give a senna draught they always give a small tea-cupful. They administer from four to six ounces at a time, and I have observed that in this way the action of the medicine is more certain, and the benefit derived from it more extensive. I am convinced that the usual mode of giving this valuable purgative in private practice is bad; the quantity given is too small, and consequently it is necessary to repeat the dose several times, a mode of proceeding apt to occasion much nausea and griping, I would therefore recommend a quantity varying from three to six

ounces, to be administered in all cases where the patient's condition will admit of free purging. A most accurate observer of the effects of medicines, Mr. Kirby, is in the habit of ordering purgative mixtures in chronic cases to be taken at bed-time, and not, as is usually done, in the morning. He asserts that their action is milder and less irritating to the bowels when the patient lies in bed and is asleep until the period of their operation, than if he were up and about.

After the purgative had produced four copious discharges, I prescribed eight minims of black drop, to be taken at a late hour in the evening. Whenever I give opiates to procure sleep, I always observe the rule laid down by Dr. M'Bride, (a celebrated physician of this city), to select the period at which nature usually brings on sleep, and which varies according to circumstances and the habits of the patient. Whenever you have to deal with watchfulness in patients labouring under morbid states of the constitution, as, for instance, hectic, inquire when the tendency to sleep usually occurs, and administer your narcotic about an hour or two before its occurrence. It is between three and five o'clock in the morning that the inclination to sleep is strongest; it is about this time that sentinels are most apt to slumber at their post, and consequently attacks upon camps or cities, made with the intention of effecting a surprise, are usually undertaken about this period of the morning. How well marked is the periodic tendency to sleep at this hour in all patients labouring under hectic fever produced by whatever cause. How often do we hear the poor sufferer complain of restlessly tossing about in his bed until three or four o'clock in the morning, when at last sleep, welcome although uneasy, for a few hours separates the patient from his pains. If given at an early hour in the evening, the effect of the opiate is not coincident with this periodic attempt of the constitution, and it fails in producing sleep, but if exhibited at a late hour, it begins to produce its soporific effect at the very time when nature inclines the harassed sufferer to repose, and the result of these combined influences is a deep, tranquil, and refreshing sleep. By observing this simple rule, I have often succeeded in producing sleep in cases where various narcotics had not only failed, but even added considerably to the irritation and discomfort of the patient.

In cases of sleeplessness, where you have administered an opiate with effect, be careful to follow it up for some time, and do not rest satisfied with having given a momentary check to the current of morbid action. To arrest it completely, you must persevere in the same plan of treatment for a few days, until the tendency to sleep at a fixed hour becomes decidedly established. You must give an opiate the next night and the night after, and so on for five or six nights in succession, and where the watchfulness has been of an obstinate and persistent character, narcotics must be employed even for a longer period and in undiminished doses. I do not allude here to the sleeplessness which accompanies confirmed hectic and other incurable diseases; such cases require a particular mode of treatment, and generally call for all the varied resources of medicine. But in those instances of watchfulness, which are frequently observed towards the termination of acute diseases, it is always necessary to repeat the opiate for some time after you have succeeded in giving a check to this symptom. You need not be afraid of giving successive opiates lest the patient should become accustomed to them, and a bad habit be generated, for the rapid convalescence and renewed health, which are wonderfully promoted by securing a sound and refreshing sleep, will soon enable him to dispense with the use of opiates.

Another disease in which sleeplessness is a prominent symptom, is delirium tremens. We have had an example recently in our wards, and you have seen the means employed to overcome it. The patient came into hospital with symptoms of extreme nervous excitement and watchfulness, which had continued for some time, and were brought on, as is most commonly the case, by repeated fits of intoxication, succeeded by a pause of perfect sobriety—in Irishmen the result of necessity or accident. In this man you must have remarked the signal benefit which attended the use of a combination of tartar emetic and opium, and how rapidly the watchfulness disappeared. I shall not enter into the details at present, as I purpose to return to this subject on a future occasion.

There is, however, one form of nervous irritability, frequently observed in persons who are in the habit of drinking freely, but without running into excess, and presenting, as it were, a shadow of delirium tremens, on which I shall make

a few remarks. This curious state of the nervous system is generally found to exist in men about the middle period of life, and who consume a larger quantity of spirituous liquors than they are able to bear. Such persons, without suffering in appearance, or losing flesh, get into a chronic state of disturbed health, manifested by nausea, and even dry retching, in the morning, loss of appetite, and impaired digestion; but, in particular, by a deranged and irritable state of the nervous system, and by watchfulness. This forms one of the most distressing symptoms, and the patient generally complains that he cannot get any sound and refreshing sleep, that he lays awake for hours together, and that when he slumbers his rest is disturbed by disagreeable dreams, or broken by slight noises. How are you to treat this affection? I can give you a valuable remedy for this deranged state of constitution—one which I have often tried, and which, from experience, I can strongly recommend. It is a mixture, composed of tincture of Columbo, quassia, gentian, and bark—say an ounce of each; and to this is added a grain, or even two, of morphia. A compound tincture, somewhat analogous to this, is much in use among military gentlemen and others, who have resided for a considerable time in the Indies, where, from the heat of the climate, and the prevalence of intemperate habits, the stomach becomes relaxed and the nervous system irritable, so as to represent, in a minor degree, the symptoms which characterize delirium tremens. You perceive I combine several tonics to form this mixture, because they are well known to produce a more beneficial effect when combined than when administered singly; and I add to these a narcotic, which has the property of allaying nervous excitement without deranging the intestinal canal. The dose of this mixture is a tea-spoonful three or four times a-day, and the best time for taking it is about an hour before meals. It gradually removes the nausea and debility of stomach, lessens nervous irritability and watchfulness, and, with a proper and well-regulated diet, and attention to the state of the bowels, I have seen it produce excellent effects. In such persons much benefit is derived from the use of the tepid shower-bath.

Fever is another disease in which sleeplessness is a symptom, frequently of an unmanageable character, and pregnant with danger to the patient. You witnessed this in the case of the boy who lies in the small Fever Ward, next to the man who is at present labouring under general arthritis. This boy had fever of a mild description, and unattended with any bad symptoms. His case scarcely required any attention, and he had almost arrived at a state of convalescence without the aid of medicine, when he began to lose his rest, and absolutely became sleepless for several nights. I beg your attention to this case, for many reasons. In the first place you have seen that we tried many remedies without success, and afterwards fortunately hit on one which answered our purpose completely. Let us examine the nature of the medicines prescribed, and our reasons for giving them.

In the first place, we gave, as in the case of jaundice, an aperient, followed by a full dose of black drop. It failed in producing any sleep; we repeated it a second and a third time, but without the slightest benefit. I then remarked to the class, that as I had noticed the good effects resulting from a combination of tartar emetic and opium in the case of delirium tremens, where opium alone failed in procuring sleep, it would be proper to give this remedy a trial. I observed at the same time, that I was convinced that the preparations of antimony have a distinct narcotic effect, and that I had seen patients in fever whose watchfulness had been removed by antimony given in the form of tartar emetic or James's powder. I said it was my firm impression that tartic emetic, along with its other effects, exerts a decided narcotic influence on the system, and that it is this which makes it so valuable a remedy in treating the sleeplessness of fever and delirium tremens. Hence I have been in the habit of giving tartar emetic combined with opium in fever, and, I must add, with very great success. Our predecessors were much in the habit of using antimonial mixtures in the treatment of fever, and they did this because they knew, by experience, that these remedies worked well. It is at present too much the fashion to decry their practice, and in this instance I think with very little justice.

In this boy's case, however, the combination of tartar emetic and opium did not succeed in producing sleep. Having thus failed in our first and second attempts, we had recourse to the liquor muriatis morphiæ, a preparation first

brought into use by Dr. Christison, and which, in the form usually employed, is equal in strength to laudanum. It is an exceedingly valuable preparation for many reasons, and one which has the strongest claims to your notice. Being of the same strength as laudanum, it saves the trouble of learning and remembering new doses, and, in addition to this, it possesses the more important advantages of inducing sleep with more certainty, and not acting as an astringent on the bowels, or affecting the head so frequently as laudanum. You observe that I say *so frequently;* I do so because cases now and then occur in which even moderate doses of the liquor of the muriate of morphia produce quite as much head-ache as laudanum. I prescribed the former in doses of fifteen drops every six hours, so as to give sixty drops in the day, and continued this practice for two days, but without the slightest effect. Here you see three modes of inducing sleep completely failed. The boy remained for a day without taking any medicine, and then we made another attempt, which was more successful. We first prescribed a purgative enema, and, after this had operated, he was ordered an opiate injection, consisting of four ounces of mucilage of starch, and half a drachm of laudanum. He fell asleep shortly after using the opiate injection, and did not awake until the next morning. The following night the opiate was repeated in the same form and with equal success; convalescence went on rapidly, and the boy's health is now quite re-established.

Here, then, is a singular fact, attested by this case, that opiates in the form of injection will succeed in producing sleep, where they have completely failed when administered even in large and repeated doses by the mouth. Baron Dupuytren was the first who made this important observation, and proved that narcotics applied to the mucous surface of the rectum exercise a powerful influence on the nervous system, always equal, and very often superior, to the effect produced by taking them into the stomach. He maintains, that in delirium traumaticum and delirium tremens a certain quantity of opium, when prescribed in the form of enema, will act with more decided effect in allaying nervous excitement, than the same or even a larger quantity when taken by the mouth. I have no hesitation in giving full credit to this assertion, as the results of my experience tend strongly to confirm its truth. I have, not long since, published in the *Dublin Med. Journal*, the case of a patient in Sir P. Dun's Hospital, who was reduced to the last stage of debility and emaciation from the combined effects of mercury and syphilis. The torture which this man endured from nocturnal pains and a total deprivation of sleep, was such that he swallowed enormous doses of opium; in fact, he had, previously to his admission into Sir P. Dun's Hospital, exhausted all his means in purchasing opium. While in hospital he used to take 150 drops of black drop in the course of a day, and yet, notwithstanding these excessive doses, he could only get a few minutes of unrefreshing slumber. After some time I changed the plan of treatment, and had the black drop administered in the form of enema. It succeeded in producing a decided soporific effect, and in a short time he was able to enjoy a sufficient quantity of repose, from taking only one-tenth of the quantity used by the mouth. I have also, in the same paper, adverted to the case of a medical gentleman who laboured under an affection of his joints, which was accompanied by spasms of the limbs, and most excruciating pains. His agony was so intense that he used to swallow grain after grain of opium, until he had taken to the amount of thirty or forty grains, with the view of procuring some alleviation of his sufferings. He was prevailed on to give up altogether the use of opium by the mouth, and employ it in the form of enema, which he did with the most striking advantage, the quantity which succeeded in giving relief in this way being scarcely the twentieth part of what he ordinarily used.

It is unnecessary for me to enter here into any discussion with respect to the nature and treatment of delirium traumaticum, and the sleeplessness which always accompanies it, as you will find this subject very ably treated in M. Dupuytren's works, and in a very instructive and elegant lecture delivered by Mr. Crampton (the Surgeon General) in this hospital, and published in the last volume of the *London Medical and Surgical Journal*. There is, however, one kind of sleeplessness arising from irritation of the skin produced by blisters, which frequently assumes a very serious character, and on which it may be necessary to offer a few observations, as the subject has not been noticed sufficiently by practical

writers. Trifling as the irritation resulting from a blister may seem, yet, under certain circumstances, it is a symptom of highly dangerous aspect, and becomes a source of just alarm. I have witnessed the loss of some lives from this cause, and many patients have, to my knowledge, been rescued from impending danger, by an early and proper share of attention being directed to its phenomena and treatment.

The bad effects on the nervous system occasionally produced by the application of blisters, are somewhat analogous to those which result from wounds and other external injuries, and to be accounted for on the same principle. Wounds and injuries sometimes make an impression on the nervous system, by no means proportioned to the importance of the injured organ to life, or to the extent of the mischief. An injury produced by a body which strikes the sentient extremities of the nerves with great force, will sometimes produce very remarkable effects on the system. Thus a musket ball striking a limb may, without wounding any great artery or nerve, or destroying any part of importance to life, produce a train of nervous symptoms of an extraordinary character. The person, without feeling much pain, and scarcely knowing that he has been wounded, without being terrified, or having his imagination excited by any apprehended dangers, turns pale, gets a tendency to faint, and sometimes actually dies from the impression made on the nervous system. In the same way an external injury reacting on the nerves may bring on high mental excitement, delirium, and a total privation of sleep, as we exemplified in delirium traumaticum. I mention this with the view of establishing the proposition that impressions made on the sentient extremities of the nerves are sometimes reflected on the nervous centres, producing the most alarming effects. In this way we can understand how the irritation of blisters may produce sleeplessness, mental aberration, and a train of symptoms analogous to those which characterize delirium traumaticum.

The delirium and sleeplessness arising from the irritation of blisters is by no means an uncommon disease. I have seen many examples of it in private practice, and I am anxious that you should be acquainted with its nature and treatment. It is generally met with in the case of children, in whom the cutaneous surface is extremely tender and irritable. I could relate several instances in which I have been called on to visit children labouring under fever, where symptoms of high nervous excitement were present, and where I found the little patients delirious, screaming, and perfectly sleepless from this cause. I have found this alarming affection generally occurring at an advanced stage of fever, and exhibiting a train of symptoms which closely resemble hydrocephalus. I have observed that after the application of a blister to relieve some suspected cerebral, or abdominal, or thoracic affection, jactitation, restlessness, constant application of the hand to the head, and delirium have appeared, and that these symptoms had been mistaken for incipient cerebritis or hydrocephalus, and treated with leeches and purgatives. When the blister had been applied to the nape of the neck, the soreness and irritation of the skin on that part *cause the child to roll its head from side to side on the pillow, with that peculiar motion and scream supposed to prove to a demonstration the existence of hydrocephalus.* I have learned also, that the above measures, so far from giving relief, have only tended to produce an exacerbation of the disease, and that the medical attendant has given up the case in despair. Now, gentlemen, if called to such a case what should be your practice? In four cases of this kind I gave my opinion frankly to the medical attendant, and told him he was pursuing a wrong course, that the disease was analogous to delirium traumaticum, and not to be treated by leeches or purgatives, and least of all by blisters. I observed to him that these symptoms had made their appearance shortly after the child had been blistered for suspected disease of the belly, or head, or chest; and that it was useless to attempt to remove the disease by leeches, or purgatives, or blisters. The remedy I always proposed was opium, and it was acknowledged in four or five cases, that this remedy had succeeded not merely in relieving the existing symptoms, but in saving the patient's life. In such cases, particularly in young children, the opium must be given in small but frequently repeated doses, so as to ensure its energetic, but safe action, and the greatest care must be taken to soothe the irritated portion of the skin, by ointments, poultices, &c., *while unwearied diligence must be bestowed upon the task of preventing the child from scratching the blistered surface.* To effect this

the child's hands must be muffled in appropriate gloves, and must be secured in the sleeves of a shirt made for the purpose.

I beg your attention still further to this subject of sleeplessness and delirium. I wish to mention the case of a gentleman who was a pupil of mine. This gentleman studied hard, attended lectures regularly, and was constantly in the dissecting room. While thus occupied, he happened to wound one of his toes in paring a corn, and afterwards wore a tight shoe on the injured foot. A small imperfect abscess formed in the situation of the corn, which was opened by one of his fellow students; the incision gave very great pain, and was not followed by any discharge of matter. Next day he was feverish, and the lymphatics of the injured limb became extensively engaged, the inflammation ascending towards the glands of the groin, and having a tendency to form a chain of insulated patches in different parts of the leg and thigh along the course of the lymphatics. This you will generally find to be the case in inflammatory affections of the lymphatics; the inflammation is seldom continuous, but, in the majority of cases, is developed at certain insulated points, where small diffuse suppurations form very rapidly. After a few days, this young gentleman's fever increased to an alarming height; he became completely sleepless, and had incessant delirium. He was purged briskly, leeched extensively and repeatedly, his head shaved, and cold applications so constantly applied, that he appeared half drowned and collapsed. Notwithstanding this very active treatment, not the slightest relief was obtained; neither were the symptoms mitigated by incisions made in the inflamed patches for the purpose of evacuating matter; the sleeplessness continued, and the delirium was as wild as ever. I saw him on the seventh or eighth day, when all antiphlogistic measures had failed, and his friends were quite in despair. On being asked my opinion, I stated that I looked upon the case as one of delirium, not proceeding from any determination to the head or inflammation of the brain, but depending on a cause analogous to those which produce delirium traumaticum, and that instead of antiphlogistics I would recommend a large dose of opium and some porter to be immediately given. Mr. Cusack, who visited the patient after me, concurred in this view, and a full opiate was administered in repeated doses. It succeeded in producing sleep and tranquillizing the nervous excitement. I may here observe that a few days afterwards this gentleman had a return of the symptoms of cerebral disturbance with sleeplessness, in consequence of omitting his opiate, and that the opiate and porter were again administered, and again succeeded in removing the delirium and watchfulness. By perseverance in the use of the same means, the disease was completely removed, and convalescence established.

The last kind of sleeplessness to which I shall direct your attention, is that which is frequently met with in persons of a nervous and irritable disposition, in hypochondriacs, and hysterical females. You will find such persons, although of active habits, and with tolerable appetites, complaining of a total privation of their natural rest, and it is astonishing to think how long they may continue subject to this harassing watchfulness. I have frequently observed this affection among females of nervous habit, who possessed strong feelings of attachment to the interest and welfare of their families, and who were remarkable for an exemplary and over anxious discharge of their domestic duties. It is also very often met with in the upper classes of life, where the susceptibility to nervous excitement is morbidly increased by fashionable habits. I shall not enter into the various moral causes which tend to produce this state of the nervous system, and will content myself for the present with giving you some hints for the treatment of this obscure affection. As yet I have not any distinct and accurate notions of the disease, and can only guess at the treatment, but this much I may state, that such cases are not to be cured by the means which I have already detailed. If they are to be cured by any means, I think it is by antispasmodics, and remedies which have a gently stimulant, and, if I may so express myself, alterative effect on the nervous system. I have cured two cases of this kind by musk and assafœtida, where every other remedy had failed. To one of these I was called by my friend, Dr. Neason Adams; the patient was a lady of delicate constitution and hysterical habit; she was emaciated, and suffered from a total loss of rest, but had no other disease. All kinds of narcotics had been tried unsuccessfully, and opium in all its forms had failed in procuring sleep. I advised the use of musk in doses of a

grain every second hour, and this means proved eminently successful. In another case I succeeded by administering the same remedy in combination with assa-fœtida. I have also remarked that assafœtida alone, given in doses of two or three grains three times a-day, has very considerable effect in calming nervous irritation of this description, and restoring the patient to the enjoyment of more prolonged and refreshing sleep. In all such cases the physician must be most careful to have the appearance of not thinking the loss of sleep as a matter of much consequence, and the family of the patient must be directed to speak as little about the matter in his presence as possible;—nay, so powerful is the opera-tion of moral impressions, that in one case which I attended along with Mr. Halahan, I succeeded in procuring sleep by ordering a musk pill to be given every second hour night and day, and by desiring the patient to be awakened, should she be asleep, at the time the pill was to be taken. I laid great stress on the importance of so proceeding, and thereby produced so strong an effect on the patient's mind, and inspired so great a confidence in the efficacy of the medicine, that she went to bed, not so much afraid of lying awake as afraid of being asleep at the hours when she ought to take a pill. The idea which had hitherto fixedly occupied her mind was displaced by a new impression, and relief was obtained the very first night.

To conclude, gentlemen, I may observe that sleeplessness in a chronic form is often produced by dyspepsia, and can only be relieved by the means suited to indigestion. Here it is that small doses of blue pill and tonic purgatives are of infinite service, combined with change of air, of scene, and an appropriate diet. In many females, sleeplessness is combined with menstrual irregularity, and can only be cured by means calculated to invigorate the health and restore the cata-menial discharge to its natural periods and quantity, for the nervous system suffers equally whether they be suppressed or overabundant. It is singular how long sleeplessness often continues in chlorosis without inducing those serious conse-quences that are produced by this symptom in other morbid states of the system. In such cases much is sometimes accomplished by means of the common prepa-rations of morphia, or by the use of Hoffman's liquor (liquor æthereus oleosus), camphor, and other medicines that act upon the nervous system. It must be con-fessed, however, that these and every other expedient to obtain sleep often fail in chlorotic and hysterical females, in whom relief is only obtained by a gradual improvement of the general health and menstrual function.—*London Med. and Surg. Journal,* 21st *March,* 1835.

30. *On the use and abuse of cold applications.* By ROBERT J. GRAVES, M. D.—In affections of the head occurring in acute diseases, and attended with raving and loss of rest, it is a very usual practice to direct the application of cold lotions to the shaved scalp.

Permit me, gentlemen, to make a few remarks upon this important subject. I wish I could make myself well understood on this point, for I have seldom met with any person who seemed to bear in mind the true principle upon which cold is applied as a means of repressing local heat. In cases of determination of blood to the head occurring in fever, the common practice is to have the head shaved and cold lotions applied. Enter the room of a patient who is using cold applica-tions, and you will observe the process conducted with great apparent nicety; the head is accurately shaved and carefully covered with folds of linen wet with a lotion to which spirit of rosemary or some odoriferous tincture has communicated an agreeable and refreshing smell; but when you come to examine the patient, you find his head smoking and the heat of his scalp increased. The nurse applies the lotion once every half hour, or perhaps not so often; indeed, she seldom repeats the application until her notice is attracted by the steam rising from the patient's head, or until she herself, awaking from a comfortable sleep, and going over to examine the state of the patient's head, finds the folds of linen which cover it as hot and dry as if they had been hung before a fire. Whether applied to reduce local inflammation in any part of the body, or to cool the scalp in deter-mination to the head, cold lotions as ordinarily employed do infinitely more harm than good. The cold is applied at distant intervals, its effect soon ceases, and reaction constantly takes place, leaving the part as hot or even hotter than it was before.

If you put your hand into snow for a few moments, and then take it out, it quickly resûmes its natural heat; and if you repeat this at considerable intervals, so as to give time for reaction to occur, the vessels assume a more energetic action, and it becomes hot and burning. If you continue to keep it in the snow for a long time, its heat becomes completely exhausted, reaction does not take place until after a considerable period, and very slowly, and the hand remains at a very low temperature for a good while. Bear this in mind, for it will direct you in the application of cold to reduce local heat. If cold applications be used at such intervals as to allow the scalp to react and resume its heat, rely upon it, it is much better to forbid them altogether. Where you wish to apply cold with effect, let it be done by relays of folded linen, wet with any frigorific mixture, and repeatedly applied to the scalp so as to leave no smoking, or, what is much better, get three or four bladders, put into each a quantity of pounded ice, and apply one over the crown of the head, one on each side, and lay one on the pillow for the back of the head to rest on.

There is a vast difference between a thing being done and its being well done, so it is with regard to cold lotions; so difficult is it to ensure their proper application, that I have entirely given them up in hospital practice, and rarely order them in private. I have been induced to abandon them in consequence of witnessing so many instances in which my directions were neglected, and consequently the cerebral congestion was augmented by their mal-application. Another serious inconvenience frequently arises from their use when applied in a slovenly manner, which is the danger of cold arising from the pillow and bed-clothes being wetted.

It is a curious fact that the head is the only one of the three cavities with respect to which long established custom has laid down the maxim, that when its contents are inflamed we may cool the surface over it, while, in inflammatory affections of the thoracic or abdominal viscera, this practice is avoided as dangerous and inapplicable. Latterly, however, some medical men have been inclined to question the grounds on which cold applications have been rejected in the two latter cases, and some have even declared that they have used ice poultices in inflammations of the chest and belly with great success and perfect safety. I am not as yet prepared to adopt this practice, although I must confess that a review of the subject might incline me to give up my prejudices on this point. It is certainly but reasonable to think that what is true of the one may be also true of the other, and that the application of cold to the head and heat to the chest and belly has nothing in its favour beyond mere custom. It should be recollected, however, that the head and face are more accustomed to cold than the chest and belly, and hence are less liable to any mischief likely to arise from its application in an intense degree. Still I am inclined to think that there is much prejudice connected with the practice of applying cold to the head; and I have very little doubt that if the matter was properly investigated, and a number of experiments made, it would lead to the abandonment of cold applications in most inflammatory diseases of the brain. In fevers, I can say positively that in the majority of cases they are positively injurious, *as usually applied;* sponging the bare scalp with tepid or warm vinegar and water, or *even frequently repeated steeping of the head and temples* will often succeed much better in abating the head-ache and restlessness of fever than any cold applications whatsoever. In 1832, a violent influenza, accompanied by most distressing head-ache, attacked thousands in Dublin; this intense pain in the head was relieved by nothing so effectually as by diligent steeping of the temples, forehead, occiput, and nape of the neck *with water as hot as could be borne.*

I do not speak here of the application of cold to the head, for the purpose of relieving local heat and inflammation, but to produce an effect on the whole system. Cold thus applied is of decided and unequivocal value. You are aware that in cases of fever accompanied by symptoms of high mental excitement and great heat of skin, the use of cold dashing has produced the most extraordinary effects. Again, if a patient has taken too large a dose of prussic acid or any other narcotic, the best mode of rousing him is by pouring water on his face or chest from a height. In Turkey, if a person happens to fall asleep in the neighbourhood of a poppy field, and the wind blows over it towards him, he becomes gradually narcotised, and would die, if the country people who are well acquainted with this circumstance did not bring him to the next well or stream, and empty pitcher after

pitcher on his face and body. This occurred to my friend, Dr. Oppenheim, during his residence in Turkey, and he owes his life to this simple but effectual treatment.—*Ibid.*

31. *Treatment of Amenorrhœa and the Uterine Pains which precede and accompany Menstruation, by Carbonic Acid Gas.* By Prof. Mojon.—It is well known that females in general, without being attacked by complete amenorrhœa, suffer great pain both immediately before and during menstruation. Various medicaments have been tried in remedy of this suffering, many of which increase it by over excitation of the nerves. M. Mojon proposes, therefore, the use of carbonic acid gas, which he considers an excellent antiphlogistic, in opposition to a great number of medical practitioners, who regard it as a stimulant. Fumigations of this gas may be also advantageously employed in cystitis, ophthalmia, and other local inflammations. This therapeutic agent not only acts on the blood in diminishing its thickness, but also on the solids in relaxing the fibrous system to prostration and torpor.

The gas is disengaged from calcareous carbonate by means of weakened hydrochlorine acid, and must be conveyed into the vagina through the orifice of an Indian-rubber pipe. These fumigations should be repeated twice a-day before menstruation, and they are found not only to regulate the course, but entirely to relieve the pains which precede, accompany, and follow menstruation. The operation may be hastened with the ordinary apparatus, by the addition of a spigoted bladder, filled with the gas and adjusted over the Indian-rubber pipe, the spigot being turned, a slight pressure on the bladder throws a current of gas into the vagina.—*Lond. Med. and Surg. Journ.* March 28, 1835.

32. *On some points connected with the Treatment of Fever,* by Robert J. Graves. Extracted from a clinical lecture delivered at the Meath Hospital, Dublin. I beg leave, gentlemen, to draw your attention to-day to some points connected with the treatment of fever. The number of fever cases we have had of late, is much greater than for some years; and to those who are anxious to acquire a knowledge of the phenomena and character of one of the most interesting and important of human maladies, our wards furnish at present very ample opportunities. I trust every gentleman who listens to me will avail himself of such advantages, and not permit opportunities of acquiring valuable information to pass away unprofitably. It is my duty to speak of the particular modes of treatment adapted to fever cases, to inform you how each symptom may be most successfully combatted, and to lay down rules for your guidance in each particular emergency; it will be your business to collect and arrange the detached materials, and form your general principles with respect to the management of this very important disease. It has never been my wish to speak generally of the nature or treatment of fever; time will not permit me, nor do I wish to encroach on the province of those who lecture on the practice of physic; my object is merely to note symptoms as they rise, to speak of their nature and treatment, to confine myself to detached observations, and, as far as lies in my power, to contribute facts to those who write or lecture on practical medicine.

A woman has been admitted lately, who had been labouring under fever for a considerable time before she came into the hospital. This poor creature seems to have been in very miserable circumstances during her illness; her bedding must have been totally neglected, and no attention paid to cleanliness, for on her admission, though nearly free from fever, she was covered with bed sores to a frightful extent. Almost every point which had been subjected to pressure had ulcerated, and the ulcers went on undermining the skin, and committing terrible devastation in the cellular substance. Cases like this require great care and unremitting attention; it is on the exercise of an active and untiring humanity that the cure will mainly depend. In the first place, you are to recollect that the efforts of the constitution towards the re-establishment of health are impeded by the irritation of the sores; sleep is prevented, and the patient kept in a state of continual suffering, while a constant drain from the system is kept up by the ulcerative discharge, adding to the amount of existing debility. Hence a pseudo-febrile state arises, characterized by quick pulse, restlessness, and want of sleep, somewhat akin to that which is produced by scrofulous irritation. The appear-

ance, however, of general excitement of the system, should never prevent the physician from adopting every mode of strengthening the patient as much as possible. You will not succeed in removing this condition by an antiphlogistic regimen; the patient requires tonics and narcotics, with a nutritious but not stimulating diet. If you put him on a low regimen, and give antifebrile medicines, you will do mischief; you will increase the existing debility, and add to the source of febrile excitement. Your practice should be to prescribe a nutritious diet, wine, and the sulphate of quinine, and to treat the sores with stimulant applications. The local application which we found most beneficial in such cases is one composed of two ounces of castor oil, and one of balsam of Peru, which is to be applied on pledgets of lint, and covered with a poultice of linseed meal two or three times a day. In addition to this, we direct the sores to be washed night and morning with a solution of chloride of soda, in the proportion of twenty or thirty drops of the saturated solution to an ounce of water. We also direct the patient to lie occasionally on her face, and enforce the strictest attention to cleanliness on the part of the nurse. Dr. Arnott's hydrostatic bed is an excellent adjuvant in the treatment of this disease, but unfortunately the one we have is at present out of order.

Such then, gentlemen, is our mode of treatment. We order the patient nourishing, but not heating, food; we give wine, regulating its quantity according to its effects on the system, and the liking of the patient; we prescribe small doses of the sulphate of quinine, and administer an opiate at night to allay irritability, and procure sleep. The local treatment consists in the use of stimulant and detergent applications, poultices, attention to cleanliness, and change of position.

With respect to the present epidemic fever, we have now seen so many instances of its direct communication from one patient to another in our wards, that we are induced to believe it to be contagious. From the great number of applicants labouring under serious and theatening diseases, we are sometimes obliged to put into our fever wards, patients affected with local inflammations accompanied by symptomatic inflammatory fever; several of these, while recovering, have been attacked with symptoms of the present epidemic. A man was admitted last week into the fever ward with violent pneumonia; the right lung was extensively hepatised, and in addition to this, the pleura was found to be engorged over a large portion of its surface. The case was one of extreme distress, and the state of the patient apparently hopeless; however, by appropriate depletion, assisted by mercury and blisters, convalescence became established, and the pulmonary symptoms were rapidly subsiding. His system was still under the iufluence of mercury, his fever had disappeared, his dyspnœa was relieved, his cough and all the other symptoms nearly gone, when he was suddenly attacked with fever, and that of the same character as prevailed among the patients in the same ward. This is, I believe, the sixth or seventh case, in which patients labouring under some other form of disease, have been seized with symptoms of the present epidemic, while lying in the same ward with fever patients. I have thought it necessary to make this observation, because you will find it asserted in medical works and by physicians of considerable eminence, that in hospitals fever does not spread from one patient to another, and that where it does appear among many individuals in the same house, its spread is chiefly favoured by want of cleanliness and proper ventilation. This, however, we can state to be the fact, that fever will spread among patients in the same ward, independent of anything connected with filth or foul air, for we have seen it occur in our wards, which I can assert are kept as clean and as well ventilated as any in the kingdom.

There is one circumstance connected with this case worthy of remark, with reference to the supposed antifebrile properties of mercury. It has been stated that mercury exercises a prophylactic influence over the system, and several persons who have cultivated medicine with success, but particularly some army surgeons of high authority, have asserted that the use of mercury not only cures fever, but also secures against it. I am afraid that in this and other cases mercury has more credit than it deserves. In speaking of cholera on a former occasion, I have told you that I had seen persons under the influence of mercury take cholera and die of it; and here we find a man whose mouth is still sore, in whom salivation had not ceased, getting an attack of fever at a time when he had just

recovered from another disease. This shows that mercury is not to be looked upon as a prophylactic in cases of fever of a contagious nature. We cannot always cure or prevent fever with mercury; on the contrary, where fever of a particular kind is present, it prevents the constitution from yielding to its influence. Thus in a case of hectic fever, brought on by suppuration of the liver, it has been found impossible to bring the system under the influence of mercury.

I come now, gentlemen, to speak of a matter of great importance in the treatment of fever,—I allude to the indications for exhibiting and the mode of giving tartar emetic at different periods of the continued fever of this country. For some time I have been in the habit of employing tartar emetic with very remarkable success at various periods of fever, but principally towards its termination. I am therefore anxious to lay before you a brief statement of my experience of this admirable remedy, and I shall take leave to illustrate this by a reference to several very remarkable cases in which its administration was followed by the most decided and satisfactory results.

You are all aware that tartar emetic has been long and justly valued by the profession for its manifold and energetic properties. Without referring to its importance in the treatment of pulmonary diseases, and almost every form of local inflammation, I may observe, with respect to our present subject, that tartar emetic in small portions, dissolved in a quantity of whey or water, has been for a considerable time a popular and successful remedy in the commencement of febrile symptoms. Whether it is by its action on the stomach and intestinal canal, or by producing diaphoresis, or by some peculiar influence on the nervous and circulating systems, that it produces its favourable effects, we cannot exactly say; but we know that it frequently succeeds in cutting short or removing febrile symptoms. All these matters are, however, sufficiently well known to every student, and require no comment.

In a preceding lecture, when speaking of the best means of procuring sleep in various forms of acute disease, I alluded to the peculiar narcotic power of the preparations of antimony, and dwelt on the benefits derived from a combination of antimonials with those medicines which are strictly termed narcotics. I told you in that lecture, that the good effects of tartar emetic in delirium tremens seem to be totally independent of its action on the stomach; for we had witnessed those effects when it had not excited nausea or vomiting. I referred also to many instances of delirium tremens, in which opium in every form had failed in procuring sleep, and where a combination of tartar emetic and laudanum had succeeded in tranquillizing the patient, and producing sound, refreshing sleep. Bearing this important fact in mind, we shall proceed to an examination of the circumstances which require the use of tartar emetic in fever.

There is a particular stage in one form of fever, and that exceedingly dangerous and threatening, in which I have derived most signal benefit from the use of this remedy. A patient, suppose, gets an attack of fever, he has all the ordinary symptoms, as thirst, restlessness, heat of skin, quick pulse, and head-ache. You are called in about the third or fourth day, and find that he has all the symptoms I have mentioned still present; his face is flushed, his head aching, his pulse from 100 to 110, but not remarkably strong; you find also that he has been sweating profusely from the commencement of his illness, but without any proportionate relief to his symptoms, and that he is restless and watchful. You are informed that his perspirations are so great that his linen has to be changed frequently in the day, and that, notwithstanding this, the pulse has not come down, the head-ache is undiminished, and the patient has become more and more sleepless. Here comes a very important practical question, namely,—How are you to treat such a case? The patient has no epigastric tenderness, no cough, no sign of local disease in either the thoracic or abdominal cavities; he has been purged, used diaphoretics, and perhaps mercurials; every attention has been paid to regimen, ventilation, and cleanliness; but still he lies there in a state of undiminished febrile excitement, with persistent head-ache, quickness of pulse, and sleeplessness.

In such a case as this you have nothing to expect from the sweating; it will never produce any relief. I was called some time back to see a young gentleman in fever, who was placed in similar circumstances to those which I have just detailed. It was about the sixth day of his fever, and I found him with a pulse of about 110, with considerable restlessness and head-ache, and was informed that

he had perspired profusely from the commencement of his illness. On hinting the necessity of more active treatment than that which had been employed, his physicians appealed to the perspirations as decidedly contra-indicating depletion. They said that the profuse sweating pointed out the impropriety of active measures, and that it was a symptom which would be speedily followed by relief. I was convinced that they had taken a wrong view of the case, and stated as my opinion that nothing was to be expected from the perspiration; that when co-existing with a persistent febrile condition of the system, when accompanied by quick pulse, head-ache, and restlessness, perspirations always indicated the necessity for antiphlogistic measures, and in particular for the use of the lancet. I instanced the case of patients labouring under arthritis with profuse perspirations not accompanied by relief, and said that it was well known that such cases were most successfully treated by a full bleeding from the arm. I accordingly stated, that although the disease was of five or six days' standing, and the pulse not very strong, I would advise immediate bleeding. Sixteen ounces of blood were therefore abstracted, with some relief to the patient, and without increasing his debility; and it was then a question what further steps were to be taken. The young gentleman had been actively purged; he had no cough or abdominal tenderness; his symptoms were head-ache, sweating, and sleeplessness; and to these, nervous agitation had now become superadded. I proposed here what surprised my colleagues very much, and this was, to give our patient large doses of tartar emetic. They said the practice was very strange, but consented to give it a trial, on laying before them the reasons which induced me to prescribe it. I said, that in such cases the tartar emetic forming as it were a part of the antiphlogistic treatment, which commenced with general bleeding, would have a tendency to cut short instead of increasing the perspiration, by reducing the inflammatory state of the system on which it depended. The reasoning seemed rather paradoxical,—nevertheless it turned out to be correct. I ordered the tartar emetic to be taken in the quantity and mode in which it is generally prescribed in acute pneumonia: that is to say, six grains of tartar emetic combined with a little mucilage and cinnamon-water in an eight ounce mixture, to be taken in the course of twenty-four hours. After taking five or six grains, the sweating began to diminish; on the second day he scarcely perspired any, and his head-ache was greatly relieved; he began to improve rapidly in every respect, sleep returned, nervous agitation ceased, and convalescence became soon established.

The next case in which I employed tartar emetic with signal benefit, was one of a very insidious character, as many of them are at present; they exhibit no prominent or alarming symptoms, and yet continue to run on day after day without any tendency to crisis. The gentleman who was the subject of this case got an attack of fever unaccompanied by any remarkable peculiarity, except that he was very nervous, and alarmed about his situation. His fever went on day after day without any decided symptom; he had no distressing head-ache, no cough, little or no abdominal tenderness; there was no vomiting or diarrhœa; and his pulse was not much above the natural standard. He had been leeched over the stomach at the suggestion of some medical friends, but this was done rather by the way of precaution than for the purpose of combatting any actual disease. About the eighth or ninth day the pulse began to rise; he complained of head-ache, and became restless and watchful. On the eleventh day the head-ache had greatly increased, he was in a state of great nervous excitement, and had not closed an eye for the two preceding days and nights. This state of insomnia and nervous agitation was immediately followed by violent paroxysms of delirium; his eyes, never closed in sleep, wandered from object to object with unmeaning restlessness; his limbs were in a state of constant jactitation, and he raved incessantly: his voice being occasionally loud and menacing, at other times low and muttering. His friends became exceedingly alarmed, and every remedy which art could suggest was tried:—his head was shaved, and leeched until they could leech no longer; cold lotions were kept constantly applied with unremitting diligence, and he was purged freely and repeatedly. At this period, that is to say, about the eleventh day of the fever, I was requested by this gentleman's medical friends to visit him. On examining the patient, I found that he was constantly making violent efforts to rise from his bed, and that he had a great deal of the expression of countenance which belongs to a maniacal patient. Under these cir-

cumstances, I advised the use of large doses of tartar emetic, in the mode already detailed, except that, in this case, in consequence of the violence of the delirium, I ordered the quantity prescribed for a dose to be taken every hour instead of every second hour. The patient took about ten or twelve grains during the course of the night, and next day his delirium had almost completely subsided. Under the use of the remedy he became quite calm, fell into a sound sleep, and began to recover rapidly.

In the two preceding cases, gentlemen, I was guided by ordinary principles, recognised by all physicians, and according to which the exhibition of tartar emetic is recommended in fever whenever there is undoubted evidence of determination of blood to the head, producing head-ache, loss of sleep, and delirium. In the cases which follow, tartar emetic was exhibited at a period of fever, and under circumstances that were, with respect to the exhibition of this remedy, not less novel than important. The principles which led me to this practice have been long established, but, nevertheless, the practice is entirely new, and (I say it with pride, for it has already been the means of saving many valuable lives), it is entirely my own.

Shortly after the commencement of our present session, Mr. Cookson, a pupil at this hospital, and remarkable for his diligent attention to clinical pursuits, caught fever while attending our wards, in which many cases of the present epidemic were then under treatment. His fever was of an insidious nature, not characterized by any prominent symptom, not exhibiting any local disease to combat, or any tendency to crisis. For the first seven or eight days, with the exception of head-ache, which was much relieved by leeching, he seemed to be going on very well; his skin was not remarkably hot; he had no great thirst, nausea, or abdominal tenderness; his pulse was only 85; and he had sweating, which was followed by some relief. About the eighth or ninth day the pulse rose, and he began to exhibit symptoms of an hysteric character. Now, in every case of fever, where symptoms resembling those of hysteria come on, you should be apprehensive of danger. I do not recollect having ever met with a single case of this kind which did not terminate in nervous symptoms of the most formidable nature. I prescribed at the time the usual antihysteric medicines, but without any hope of doing good, knowing that these symptoms were only precursory to something worse. I also, as a precautionary measure, had leeches applied to his head. The fever went on, the head-ache became more intense, he grew nervous and sleepless, and fell into a state of great debility. On the fourteenth day of fever his tongue was black and parched, his belly tympanitic; he was passing every thing under him unconsciously; he had been raving for the last four days, constantly attempting to get out of bed, and had not slept a single hour for five days and nights. Dr. Stokes, with his usual kindness, gave me the benefit of his advice and assistance at this stage of Mr. Cookson's illness, and we tried every remedy which experience could suggest. Blisters were applied to the nape of the neck, the head was kept cool by refrigerant lotions, the state of the belly attended to, and, as we perceived that the absence of sleep was a most prominent and distressing symptom, we were induced to venture on the cautious use of opium. It was first given in the form of hydrarg. c. cretâ, with Dover's powder, with the view of relieving the abdominal symptoms as well as procuring sleep. This failing in producing the desired effect, we gave opium in the form of enema, knowing its great power in the delirium which follows wounds and other injuries. This was equally unsuccessful with the former. He still was perfectly sleepless. We came again in the evening, and, as a last resource, prescribed a full dose of black drop, and left him with the conviction, that if this failed he had no chance of life. On visiting him next morning at an early hour, we were highly mortified to find that our prescription had been completely unsuccessful; he had been more restless and delirious than ever. Here was the state in which we found him on entering his chamber at eight o'clock in the morning on the 15th day of his fever. He had universal tremors and subsultus tendinum, his eye was suffused and restless, he had been lying for some days entirely on his back, his tongue was dry and black, his belly tympanitic, his pulse 140, quick and thready, his delirium was chiefly exhibited in short broken sentences and in a subdued tone of voice, and it was now eight days and nights since he had slept. Here arose a question of great practical importance. How the nervous agitation was to be calmed and sleep pro-

duced? Blisters to the nape of the neck, cold applications, and purgatives had failed; opium in various forms had been tried without the slightest benefit; if sleep were not speedily obtained he was lost. At this emergency a mode of giving opium occurred to me which I had never thought of before. Recollect what his symptoms were at this period: quick failing pulse, black, dry, tremulous tongue, great tympanitis, excessive prostration of strength, subsultus tendinum, extreme nervous agitation, constant muttering, low delirium, and total sleeplessness. I said to Dr. Stokes that I wished to try what effects might result from a combination of tartar emetic and opium; I mentioned that I had given it in cases of delirium tremens with remarkable success, and thought it worthy of trial under the circumstances then present. Dr. Stokes stated in reply, that he knew nothing with respect to such a combination, as adapted to the case in question, that he had no experience to guide him, but that he would yield to my suggestion. We therefore prescribed a combination of tartar emetic and laudanum in the following form, which is that in which I generally employ these remedies in the treatment of delirium tremens. R. Antimonii tartarizati grana quatuor, tinct. opii. drachmam, mistûræ camphoræ, ℥viij. Of this mixture, a table-spoonful to be taken every second hour. The success of this was almost magical. It is true that it vomited him; after taking the second dose he threw up a large quantity of bile, but it did him no harm. After the third or fourth dose he fell asleep, and awoke calm and refreshed; he began to improve rapidly, and soon recovered.

The next case to which I shall direct your attention is that of Mr. Stephenson, a pupil of Mr. Parr of this hospital. This young gentleman, as many of you will recollect, was attacked with fever about the middle of January. On Thursday evening he complained of languor and malaise, and on the following day felt himself feverish, but without any prominent or decided symptom. At night he took a dose of calomel and antimonial powder, which had no sensible effect, and the following day complained of shivering, violent head-ache, pain in the back, thirst, prostration of strength, and sleeplessness. He was ordered to take a combination of tartar emetic and nitrate of potash in camphor mixture, which produced a few loose stools and some diaphoresis; but in consequence of its effect on the stomach, and his complaining much of thirst and epigastric tenderness, the tartar emetic was omitted and effervescing draughts prescribed. Two days afterwards, the epigastic tenderness still continuing, twelve leeches were applied over the pit of the stomach, followed by blister, which gave relief, and the bowels were kept open by enemata. He commenced a second time the use of the tartar emetic and nitrate of potash, with the addition of five drops of tincture of opium to each dose, but was obliged to give it up again in consequence of the increase in his gastric symptoms. He now became exceedingly restless, and his delirium began to assume a very intense character. Leeches were applied behind the ears, his head shaved and his temples blistered; he had also a large blister over the abdomen, which gave him considerable relief, but the cerebral and nervous symptoms became much worse. The delirium went on increasing, accompanied by subsultus tendinum, and picking the bed-clothes; he was perfectly sleepless; raved incessantly, and had to be kept down in bed by force. On the 17th day of his fever he was in the following condition,—tongue brown and rather dry, no remarkable thirst or abdominal tenderness, eyes red and ferrety, no sleep for five nights, constant muttering and delirium (which had now assumed the character of delirium tremens), subsultus tendinum and jactitation extreme, urine and fæces passed under him unconsciously. I directed the combination of tartar emetic and laudanum to be immediatly given, carefully watching its effects. He had only taken two doses when a degree of calmness set in, bringing with it relief to all his symptoms, and before a third dose could be administered, he fell into a profound sleep, from which he awoke rational and refreshed. The mixture was continued every four hours with increasing benefit, he slept long and soundly, and began to improve in every respect. On the second day after he had begun to use the tartar emetic, he took a little porter, which was changed the next day for claret and chicken broth. In about a week he was able to sit up in bed, and seven days afterwards was able to leave the hospital and go to the country for change of air.

The last case to which I shall direct your attention is that of Mr. Knott, also a pupil of this hospital, a gentleman remarkable for his unremitting attention to clinical pursuits, and from whom I derived much valuable assistance in conduct-

ing various post-mortem examinations. This gentleman was attacked with fever about the latter part of January, which went on for some time without any particular symptom, except considerable restlessness and nervous excitement. He then became perfectly sleepless, complained of violent head-ache and thirst, raved, and became exceedingly irritable. Opium in various forms and repeated doses, either alone, or combined with musk and camphor, totally failed in producing sleep, and his condition became daily worse. On the 13th day he was in a very dangerous condition; his nervous agitation had risen to an alarming height, and for many days and nights he had never closed an eye. At this period it appeared obvious that if something were not done to calm nervous excitement and restore sleep, he had but little chance of life. Under these circumstances I proposed to my friend, Dr. M'Adam, who attended with me, to give tartar emetic and opium. After he had taken about three table-spoonsful, he had a copious bilious evacuation, and immediately afterwards fell into a sound sleep, during which he perspired profusely, and awoke in about twelve hours, with every bad symptom gone. The nervous irritability was completely allayed; his thirst and head-ache relieved; his tongue moist and cleaning; and his reason quite restored. From that period every thing went on favourably, and he rapidly regained his health and strength.

Since the foregoing lecture was delivered, I have met with several cases of fever, in which I employed the tartar emetic and opium, with the same remarkable success. A man named Christopher Nowlan was admitted into Sir P. Dun's Hospital, on the 3d of February last, labouring under fever. He had been ill ten days, had raving, subsultus tendinum, and appeared unable or unwilling to answer questions. His wife stated that he had had diarrhœa for the preceding three days, and that he dozed occasionally, but never slept. He appeared exceedingly low and prostrated, and lay constantly on his back. A succession of flying blisters were ordered to be applied to the chest and stomach, and wine and chicken broth prescribed. He also got the following draught every third hour:—℞. Mist. camphoræ, ʒj.; Spirit. ætheris oleosi, ʒss.; Spirit. ammoniæ aromaticæ, ʒss.; Moschi, gr. viij. Misce. Under the use of these remedies he began to recover from his prostration, but as the sleeplessness and delirium still continued, I ordered him to take the tartar emetic mixture in the usual way. It produced at first two or three full discharges from the bowels, and after he had taken the fourth dose he fell into a sound sleep, from which he awoke much better, and soon became convalescent.

In the case of a patient named Michael Murray, who exhibited the same remarkable nervous irritability and sleeplessness, this remedy was also employed with very striking effects. This man had been ill of fever for ten days before his admission into Sir Patrick Dun's Hospital, and appeared so much prostrated, that I ordered him arrow-root, with beer. He raved a little on the night of his admission, and remained without closing an eye until morning. The same symptoms were observed on the following day, and his nervous irritability became increased. On the 14th of February he had been five days in the hospital, and had not enjoyed a single hour's sleep. I ordered the tartar emetic mixture to be given: three doses produced sleep: he had no other bad symptoms, and recovered completely.

In another very bad case of maculated fever, the same results were obtained. The patient, Mary Farmin, had got an attack of fever after a fright. She had been eight days ill, at the date of her admission, February 25th. She had irregular pulse, sleeplessness, head-ache, and suffusion of the eyes; moaned and sighed continually, and appeared greatly prostrated. She was blistered, had fœtid enemata, and took the chloride of soda internally with some benefit; but the sleeplessness and nervous excitement continued. In this case, though the tartar emetic was not followed by speedy convalescence, still it produced remarkably good effects; after taking four doses of it, she fell asleep, and did not awake until next morning.

There are many other cases which I could adduce to prove the value of a combination of tartar emetic and opium in the nervous sleeplessness of low fever; the foregoing, however, I trust will be found sufficient.

I forgot to observe, that all the cases I have spoken of as successfully treated by means of tartar emetic combined with opium, in the advanced stage of the dis-

20*

ease, were cases of maculated or spotted fever. I shall take a future opportunity of entering more fully into a detail of its symptoms.—*Lond. Med. and Surg. Journal, May*, 1835.

33. *Treatment of Mercurial Salivation by concentrated Muriatic Acid.*—M. VELPEAU is of opinion that mercurial salivation is connected with some alteration of the mucous cryptæ in the mouth and not with inflammation of the salivary glands, for he remarks, "when a gland is inflamed it no longer secretes: besides which, the patients do not refer the pain they feel to the glands, but to the interior of the mouth.

"What is the progress and effects of mercury? By its extreme subtlety it is introduced into the system, saturates it as it were and inflames it; for most generally the gums, the internal lining of the cheeks, the edges of the tongue are covered with a thick layer of lymph, and this is most probably owing to an irritation, generated either by sympathy or continuity, and it is therefore essential to look to the cryptæ rather than the glands. This view of the subject induced M. Berard to make use of muriatic acid, and myself to employ it alternately with a mixture of honey, the acid in question, solution of lunar caustic, and several other remedies. For the last two years I have returned to the use of the acid, but I now prescribe it in the pure or even concentrated state. In a patient who had been labouring under severe ptyalism for four days, and to whom I applied the acid by means of a hair brush pencil, the good effects were immediate. I was afraid, however, lest it should produce mischief, but was deceived: a pellicle forms over the mouth, but there is no inflammation. Of three patients treated with concentrated muriatic acid, one has left the hospital: of the two remaining the second recovered in a few days. In these cases the patients were touched with the remedy four times in two days, and this sufficed. In the third patient the inflammation was less acute, and the effects less marked: moreover, the salivation was of some standing; from all which it may be inferred that the muriatic acid is beneficial in proportion to the intensity of the inflammation. To this patient, therefore, I applied alum, and the symptoms were almost directly ameliorated; alum, however, to be useful, should be used in substance, and in large quantities."—*Lancette Française, 2nd June.*

OPHTHALMOLOGY.

34. *Purulent Ophthalmia of Infants.*—Dr. EVORY KENNEDY laid before the Medical Section of the British Association at the meeting in Dublin some interesting observations on this subject. Dr. Kennedy said that the object of his communication was merely to illustrate some disputed points in practice; on such a subject nothing new or original was to be expected. Purulent ophthalmia was of very frequent occurrence; many cases of it were to be met with in lying-in-hospitals; it was a disease of a violent character, and perhaps caused more blindness than any other affection of the eye. He did not intend to enter into the history of the disease, nor would he stop to examine the question as to its phlegmonous or erysipelatous nature. A great deal of difficulty attended the investigation of the origin of purulent ophthalmia, as connected with a specific virus. As far as his experience went, the proportion of cases which could be distinctly referred to gonorrhœa, or to the leucorrheal discharge, was very small. He had, however, observed that ophthalmia, generated in this way, was of a bad and obstinate character; five of the worst cases he had seen had been produced by infection, and in one of these there was extensive sloughing of the cornea. The disease was observed in the lying-in hospital to commence either immediately after birth, or in a few days afterwards. It was also seen to follow exposure to cold and irritants, a circumstance which goes to prove, that irritation, whether specific or not, may produce it. Viewed without reference to any theory, the disease seemed to consist in a violent and rapid inflammation, speedily followed by a copious secretion from the diseased part. A very remarkable change took place in the secretion of the conjunctiva; this, however, was not peculiar to that

membrane; an analogous change was frequently observed in certain affections of the mucous membrane of the genito-urinary and respiratory systems.

With respect to the treatment of purulent ophthalmia in children much difference prevailed. Some treated it with sedatives, others with stimulants; a third class restricted the use of sedatives to the early stage of the disease, and then had recourse to stimulants and astringents. He would proceed to state those means which he had found most efficient. One of the first and most necessary steps in the treatment was the application of leeches. One of these was applied to the inflamed lid, or to the temple in the immediate vicinity of the eye; the former situation was, however, generally preferred. Dr. Kennedy had never seen any inconvenient or alarming hæmorrhage from the use of leeches under such circumstances, and conceived that the extravasation of blood in the loose cellular tissue of the lids might, by its pressure, have some effect in preventing the hæmorrhage. In bad cases, where the inflammatory symptoms ran high with copious purulent discharge, and a tendency to eversion of the lids, the leech was applied a second or even a third time, or oftener. Leeching was not found necessary in all cases; in the milder ones, fomentations, alterative aperients, and the use of a solution of nitrate of silver, removed the disease in two or three days. With respect to leeching, he had to observe that he had never seen any of the bad effects attributed to it by some practitioners;—in some of the cases which he had under treatment, a leech had been applied four, five, or even six times to the same individual with benefit.

After leeching, the common practice is to have recourse to fomentations, aperients, and astringent collyria. Dr. Kennedy did not think this mode sufficient; to treat the disease with effect, it was necessary to produce an altered action in the diseased parts.—For this purpose nitrate of silver seems to be better adapted than any other substance; he had tried it extensively, and could bear ample testimony to its value. He had always employed a strong solution, having found that under five grains to the ounce, it produces little or no effect. Solutions, varying in strength from ten to twenty grains, or even half a drachm to the ounce, were applied to the eye, three or four times a day, and succeeded in effecting a cure, where weaker ones had failed. In some cases, the solid nitrate of silver was applied all over the inside of the lids. This was followed by considerable pain, and a puffing of the lids, which continued some hours after the operation, but was easily removed by sponging the eyes with cold water. In obstinate cases, besides leeching and the nitrate of silver, alterative aperients were employed. Scarification of the lids was not resorted to in any case, and Dr. Kennedy thinks, that in the early stage it is objectionable. A close and constant attention to cleanliness was found to be of the greatest use, and he had observed that those nurses, who were careless in washing the eyes of the children after birth, had the greatest number of cases in their wards. The foregoing treatment proved ineffectual, where attention to cleanliness had been neglected. His attention was drawn to this circumstance by observing, that all the cases which were under one particular nurse recovered rapidly, and cases which had been going on badly with others, began to improve when placed under her care. On inquiring into the cause of this, he found that this woman kept the child almost constantly in her lap, and removed the discharge with a soft sponge, as fast as it formed. This was also noticed in the convalescent cases. Where the children had been removed from the hospital, a slight discharge still continuing, they generally relapsed from neglect. The case of sloughing of the cornea was one of this description.

The success attending this practice was seen in the rapid subsidence of the disease. On the second or third day, the infant was able to open its eyes, and the worst cases yielded in ten days. Where the disease was protracted, owing to local or constitutional debility, the muriated tincture of iron was given in the breast milk, and occasionally the vinum opii was dropped into the eye.

Dr. BEATTY said, that having the superintendence of a similar institution, he could confirm many of the foregoing statements.—With respect to a specific virus, he had observed, that in the great majority of cases he had been unable to trace the disease to such a source. With regard to treatment, his experience differed in some points from Dr. Kennedy's, particularly as regarded the application of leeches. He had been desirous of testing the merits of treatment, omitting the use of leeches, and had found that a recovery took place as certainly in those

cases where no leeches had been used as where they had been employed. In about twenty-five or thirty cases which had occurred at the lying-in hospital, in Cumberland-street, he had not used a single leech, and yet in no case had the disease terminated in blindness, nor was it ever found necessary to keep the child in hospital longer than ten days. Its treatment consisted at first in the use of cold applications to the eye, constantly repeated, and the use of alterative aperients, and afterwards of the saturated solution of the subacetate of lead, as recommended by Dr. Jacob. If no improvement followed the use of the liquor plumbi, in two or three days, he then had recourse to the solution of nitrate of silver, of the strength of ten grains to the ounce or more. He had found the five grain solution quite inefficient.

Mr. Byrne said, that in every case of purulent ophthalmia, which came under his notice, he had been able to trace it to infection. He had frequently applied the solid nitrate of silver to the conjunctiva, with great benefit; any swelling of the lids, arising from its application, could be removed easily by a poultice, made with bread soaked in cold water.

Dr. Collins stated, that he had been in the habit of applying a leech to the eyelid in case of purulent ophthalmia, and repeating it in six or eight hours afterwards if necessary. He seldom found more than two necessary to arrest the disease, and had recourse to the nitrate of silver on few occasions; but where he had used it he found it very serviceable. He had never observed any bad effects from the use of leeches.

Dr. Ireland said, with reference to the doctrine of a specific virus, that he had frequently met with the disease in cases where there could not be the slightest suspicion of the existence of gonorrhœa. As a proof that purulent ophthalmia may be caused by common irritants, he would mention that in a case which he had recently attended, the disease was produced by the nurse permitting a drop of proof spirit (which had been used in washing the child) to fall into the eye. With respect to leeches, he had used them on very many occasions, and had never observed any bad consequences to result from their application. He was in the habit of applying the leech to the conjunctiva lining the lower lid. After having reduced the inflammation by leeching he used the nitrate of silver solution in the proportion of a scruple to the ounce of distilled water, and would have no hesitation in using it of the strength of a drachm to the ounce, or even more. With respect to the duration of the disease, his experience differed from that of Dr. Kennedy and Dr. Beatty; the disease was seldom cured in less than ten days, and frequently lasted for a month or six weeks.—*Dublin Journal of Med. and Chem. Sc. Sept.* 1836.

35. *On the advantages and disadvantages of operating for Cataract when only one Eye is affected.*—The following interesting observations by Mr. H. F. Brett, on this much vexed question, are deserving of attentive consideration; we take them from our cotemporary, the *India Journal of Medical Science.*

Objection 1st.—One eye being sufficient for the purposes of life, why therefore subject the patient to the pain and inconveniences attending the operation?

Arguments in favour of Operating—1st. When one eye is diseased, blindness must almost necessarily follow by the formation of cataract in the other eye. Ergo, it becomes necessary to anticipate the disease in the second eye, by endeavouring to restore the sight in the eye first attacked.—2nd. Many people have a strong as well as a weak eye, and the former more often becomes diseased.—3d. Obscurity from sympathy and habit, often results from a patient becoming blind of one eye; especially when first accidentally discovered by him on his closing the sound eye.—4th. The sphere of vision with one eye is considerably less than with two.

Objection 2nd.—Great inconvenience has occasionally resulted from confusion of vision, occasioned by the different refracting power of the two eyes, one possessing and the other not possessing the crystalline humour.

Arguments in favour of Operating.—1st. Confusion of vision is not always or even generally the result of the operation.—2nd. Supposing that confusion of vision generally did occur, the arguments in answer to the 1st objection would equally apply to this objection.—3d. Again, the extreme anxiety of the patient in the anticipation of the disease ensuing in the other, is a strong inducement for

operating.—4th. The length of time likewise for the patient to wait until he be-
comes blind in both eyes, seems a needless delay, and painful state of suspense,
seeing the period may vary from a few months to many years.—5th. The diseased
eye, favourable for operation, may become unfavourable, first, by accident, second-
ly, by inflammation of an acute or chronic character, adhesion to the Iris, &c.
Amaurosis also sometimes follows from delay, and change in the consistence and
volume of the lens produces sometimes internal inflammation, and also absorp-
tion of the vitreous humour which an early operation might have prevented.

Objection 3d.—An eye which has undergone an operation with every success,
never obtains that perfection of vision which is possessed by a perfectly sound
eye.

Arguments in favour of Operating.—Such imperfection is remedied by the em-
ployment of good glasses; and the question is not as to the patient being short-
sighted, but as to his having any vision at all, seeing that the sound eye becomes
generally blind. Moreover, the advantage of vision even with a glass, is prefera-
ble to blindness without, in that eye, in every respect.

Objection 4th.—When only one eye is affected, the operation has not such a
brilliant effect, and the patient is seldom satisfied.

Arguments in favour of Operating.—1st. Such a consideration is not to be placed
in opposition to the argument above adduced, and on the mind of an intelligent
patient could have no weight.—2nd. It would not be a sufficient motive for the
operator to be influenced by.

The above arguments would seem greatly to preponderate in favour of operat-
ing.

A few additional arguments in favour of operating may be adduced; but these
are not of universal application, viz.

Arguments in favour of Operating.—1st. The patient may have originally
laboured under short-sightedness (Myopia). Some of these patients see better
with a good glass after the operation than they did before, or than with the other
eye, especially if the Myopia had been caused by deficient convexity of the lens
and not of the cornea, the lens being now removed.

2nd. Patients of an advanced period of life, who become affected with presbyo-
pia, becoming affected with cataract, often see extremely well after the operation
without the use of glasses.

3d. Beer and others are of opinion that from the great sympathy between the
two eyes, the morbid action of the sound eye may be prevented by the removal of
the complaint in the diseased eye. But satisfactory cases in illustration have not
been adduced. It is contrary I should say, to general experience.

4th. The patient being young, a soldier, &c. are among the minor inducements
for operating.

Observations.—The right eye is generally the strongest, and the left the weak-
est, as may be demonstrated by looking at two objects, at different distances, in
the same straight line, with both eyes open, say the flame of a candle and the fin-
ger. On closing one eye, say the right, the finger will appear to move away from
the straight line, and on again opening the right, and closing the opposite eye,
the finger will not appear to move. The *strongest* eye seems generally to be the
first attacked with cataract.

Of a hundred cases taken in regular succession eighty-eight were double cata-
racts, and twelve single; but of course many of these latter were of recent forma-
tion and the disease will probably follow in the other eye, in most of them. Of the
above one hundred and seventeen had undergone the native operation in one eye,
but the disease had not been prevented advancing in the other eye, in a single
instance.*

I have seen instances where confusion of vision was occasioned to the sound

* The native operation, I have no hesitation in declaring, is most barbarous. In these
seventeen cases, fourteen were completely destroyed, and in two of the others vision very
imperfect. In their best cases the internal hyaloid membrane is broken down, and ab-
sorption of the vitreous humour likewise takes place, and to either or both of these in-
juries may be attributed the tremulous Iris, so commonly observed, and diminished refrac-
tive power, of the vitreous humour, closed pupils, Amaurosis, and general suppurative
inflammation of the eye, &c. often follow the native operation; independent of the many
cases unfavourable for operation which are couched by them from incorrect diagnosis.

eye, especially, on discovering the blindness of the other eye. Patients may often be observed to put up their hand to the diseased eye, to shut out what little sensibility to light remains, when they wish to notice objects attentively.

Mr. Guthrie states that he has met with several instances of confusion of vision, and in *one* instance the patient wished him to destroy the sight gained by the operation. Dr. Andrew Smith, however, on the other hand, gives *several* cases in illustration of the double vision not existing at all, or being only of very temporary duration. Indeed but very few illustrative cases and facts seem to have been adduced by the *opponents*, whilst the *advocates* are rather replete with them.

In my own experience, I have never seen confused or double vision, excepting on one occasion, and this did not continue, vide case of Kumber Ali Beg.

With reference to the propriety of operating on one eye to anticipate the disease in the other eye, the following cases may be adduced.

Case.—R. Anderson, Esq. æt. 64, resident in India 30 years, became affected with cataract. The disease was complete in the left, incipient in the right. I restored him to sight in the left eye two years ago, after which he became blind in the right, for which he has since undergone the operation.

Case.—W. Burt, æt. 50, thirty years residing in India, in the King of Oude's service, was operated on by Dr. Luxmore some years ago in the right, became shortly blind in the left—I operated on him a short time since, successfully: both these patients see remarkably well with glasses, and are evident gainers, by having at no period been deprived of the blessing of sight.

The following is the result of the twelve cases of single cataract previously alluded to.

Doorjyun Brahmin, æt. 60, blind of the left eye only. The operation of reclination was performed. This patient had no confusion of vision, and saw equally well with this eye as with the other.

Case 2nd.—Taj Khan, æt. 60, cataract of right eye only. This patient on recovering from the operation had no confusion of vision, and saw near objects better than with the other eye.

Case 3d.—Meea Moohummud Ghos, æt. 55, cataract of the left eye only, had no confusion of vision after the operation, and saw near objects better than with the other eye.

Case 4th.—Hussain Shah Syed, æt. 60, cataract of the left eye only. Had no confusion of vision, and saw better than with the other eye.

Case 5th.—Kurrim Ali Khan, æt. 60, cataract of the left eye only. Had no confusion of vision, and sees better with the eye that has undergone the operation than with the other.

Case 6th.—Kumber Ali Beg, cataract of the left eye only. Had double vision for three days, after which it subsided. Vision equally good as with the other.

Case 7th.—Gunga Chumar, æt. 40, soft cataract of the right eye. Prognosis very unfavourable. Three operations were required on this patient, notwithstanding which he sees extremely well and had no confusion of vision. Three others had very fair average vision without confusion, and two were unsuccessful.

In conclusion it appears to me, that as a general rule, the practice of operating is founded on rational principles, without infringing on the aphorism of

"Quantum à rerum terpitudine abas,
Tantum te à verborum libertate sejungas."

in adopting, or recommending the measure.

---

36. *Spontaneous Apoplexy of the Globe of the Eye.*—The effusion of blood into the chambers of the eye from mechanical injuries is of sufficiently common occurrence; but its spontaneous occurrence in a person in other respects well, is so rare as to render the following case related in the *Bulletin Général de Thérapeutique*, for 30th April, 1835, worthy of notice.

A woman of 40 years of age was admitted into L'hôpital de la Charité, the anterior chamber of whose left eye was filled with blood; the cornea was convex, and the sclerotica evidently distended, which occasioned violent shooting pain in the organ and the corresponding side of the head. Without being affected with

photophobia, all objects viewed by the left eye appeared to the patient red. This condition had existed nine days, when the patient was admitted into Hospital. An attentive examination of the causes of this accident did not enable the physician to discover any cause for the lesion, unless it were a suppression of the menses.

By bleeding, leeches to the vulva, resolvent cataplams to the eye, the absorption of the blood was effected in two months; and the form of the eye, and the faculty of sight were restored.

37. *Cod Liver Oil in some opacities of the Cornea.*—M. CARRON DU VILLARDS, in a paper inserted in the *Bulletin Général de Thérapeutique,* (30th Oct. 1835,) lauds the efficacy of the cod-liver oil in opacities of the cornea, whether resulting from slight ulceration or from interlamellar effusion. It is only applicable after inflammation has disappeared. A drop or two of the oil is then to be placed on the cornea with a camel's-hair brush. Sometimes, even the white oil is too stimulating, and it is then necessary to dilute it with sweet-almond oil; in other instances, the white oil is not sufficiently stimulating, and in this case the brown oil is to be used.

38. *Hemeralopia from Worms in the Intestines.*—A very interesting case of this in a boy, eleven years of age, is recorded by Dr. ALANCON, in the *Journal des Connaissances Medico-Chirurgicales,* for Sept. 1835. The boy's health, in all respects, appeared perfectly good, and no apparent cause for the affection could be traced. During the day, he saw as well as usual, but, as evening set in, his vision declined, and at night he became blind. Learning that he had been subject to worms, Dr. A. administered a large dose of oil, which brought away a number of these animals, after which his sight immediately improved, and in ten or twelve days was perfectly restored.

39. *On Fistula Lachrymalis—new operation for.*—Professor JACOB, of Dublin, has communicated to our Irish cotemporary, (March, 1836,) some interesting observations on the treatment of fistula lachrymalis. "The simple course prescribed by Mr. Ware is probably," he remarks, "after all, the most practicable, and most likely to terminate successfully; if the disease has not occasioned an aperture in the lachrymal sac, or if this aperture be not situated in a right line with the longitudinal direction of the nasal duct, a puncture should be made into the sac at a small distance from the internal juncture of the palpebræ, and nearly in a line drawn horizontally from this juncture toward the nose, with a spear-pointed lancet. The blunt end of a silver probe, of a size rather smaller than the probes that are commonly used by surgeons, should then be introduced through the wound, and gently but steadily be pushed on in the direction of the nasal duct, with a force sufficient to overcome the obstruction in the canal, and until there is reason to believe that it has freely entered the cavity of the nose." "The probe is then to be withdrawn, and a silver style, of a size nearly similar to that of the probe, but rather smaller, about an inch and three-eighths in length, with a flat head like that of a nail, but placed obliquely that it may sit close on the skin, is to be introduced through the duct in place of the probe."

The first direction in the above which calls for observation, is that of pushing the probe gently with a force sufficient to overcome the obstruction. Now the fact is, that the obstruction is often so firm, that it will not yield to a gentle force, and the surgeon must use very considerable pressure to overcome the resistance. I have more than once found it impossible to pass down the blunt probe with all the force I could exercise, probably in consequence of the passage having been completely blocked up by the preceding inflammation. Under such circumstances, I cut away the large part off the handle of a very fine trocar, made for puncturing tumours suspected to be aneurismal, and passed the instrument into the sac, carrying the point downward with a rotatory motion until it reached the nose. I then withdrew the trocar and passed a silver wire in its place, which I retained while I pulled away the canula, leaving the wire behind as a style in the nasal duct. Dr. Lubbock of Norwich, has just described in the Edinburgh Medical and Surgical Journal, a grooved knife for penetrating the obstruction, and affording a means of passing the style. 'The blade is two inches and three quarters long,

including the shoulder, and less than an eighth of an inch broad. In shape it re-
sembles a catlin, and cuts upon both edges for the extent of half an inch from its
point, where the knife is thin; but as the thickness of the instrument increases to-
wards the handle, the edges become too thick to cut easily. The groove extends
exactly along the centre of the anterior surface; the posterior surface is slightly
convex, in order that the groove may be made as deep as possible.' I have no
doubt that this contrivance is well calculated to effect its object.

"Having sometimes experienced considerable difficulty in introducing the com-
mon nail-headed style after the probe with which the passage had been forced was
withdrawn; and also, having seen several cases in which the common style had
slipped down into the duct, and its head became concealed in the sac, I adopted
the following plan, and found it in several cases safe and convenient.

"Having made the opening into the sac, I pass a common surgeon's probe into
the duct, and force it firmly and steadily through the obstruction, till the point
rests on the floor of the nostril. I then bend the probe down on the cheek, over
the point of my finger, which I press against it where it protrudes from the exter-
nal opening, and then cut it off with a bone forceps to the proper length; thus
leaving a style the exact length of the passage, which cannot become concealed
by its head slipping into the sac. As the tumefaction subsides, the protruding
part of the style is shortened with the cutting plyers, until it is on a level with the
orifice in the skin, when it may be taken out and blackened with sealing-wax as
the head of the common style is, and again replaced; which at this stage is attend-
ed with no difficulty.

"It appears surprising to me that surgeons have never recollected that an open-
ing might be made into the lachrymal sac without cutting through the skin of the
face, and thus producing a cicatrix in a situation where it should be avoided.
Surely the sac is as accessible, if not more so, within the eyelid as without. Ex-
ternally it is covered by the skin and the fibres of the orbicularis palpebrarum, the
tendon of which muscle running across the sac to its insertion, leaves a very small
space for an opening between it and the ridge of bone belonging to the nasal process
of the superior maxillary bone, which constitutes here the prominent margin
of the orbit, and by its elevation renders the free access to the lower part of the
sac somewhat difficult from without. Internally the sac is covered by the con-
junctiva, some adipose cellular membrane, and Horner's muscle; and the carun-
cula lachrymalis, lying over the termination of the lachrymal canals at the upper
part, leaves at least a quarter of an inch accessible to the point of the bistoury be-
low. The lower lid being depressed, the point of the instrument should be in-
troduced into the sac just beneath the caruncula lachrymalis, and pushed directly
downwards, inclining the edge of the blade a little inward; when withdrawn, the
finger depressing the lid should not be removed, unless a canula, or Mr. Lob-
bock's bistoury be used, as the opening in the conjunctiva may then cease to cor-
respond with that in the sac, and the introduction of the style be impeded. Since
this mode of operating occurred to me, only one case offered in which it could be
fairly tested. It was one of those enlarged sacs, distended with tears and mucus
without inflammatory action. I compressed the tumour with my finger, at the
same time pulling down the lower lid, thus rendering it prominent beneath the
conjunctiva, where I opened it freely, introducing the bistoury just below the ca-
runcula lachrymalis. I then passed the probe through the obstruction in the nasal
duct in the usual way, bent it over the cheek as I have described, and cut it to a
convenient length, allowing the projecting portion to fall in behind the lower lid,
where it lay quietly for three weeks without producing irritation or inflammation
requiring its removal.

"I ventured to suggest this mode of operating without having yet submitted it
to a fair trial myself, with the hope that some surgeon, having extensive oppor-
tunities of ascertaining its value, may be induced to submit it to experiment, at
the same time that I propose to do so myself. Many cases may occur where the
plan cannot be adopted, as where there is abscess, with much external tumefac-
tion of the lids; but even in such case, it may be a question whether an opening
might not be made from the conjunctiva after the swelling has subsided. If a fis-
tulous opening should remain, might it not be less annoying and less noticed in-
side the lid than externally? In considering this, or any other operation for the
restoration of the passage from the lachrymal sac to the nose, the propriety of

resorting to such a measure in all cases may fairly be questioned. Simple obstructions, with more or less of *epiphora*, or watering of the eye, are sometimes attended with little inconvenience, and often the obstruction is only temporary, arising from tumefaction of the mucous membrane from inflammatory action. In case of abscess of the sac, the most prudent course may be to open it, and secure a free outlet for the matter for some days, after which the opening may be allowed to heal up, if so inclined; and if it should become fistulous, the operation may be resorted to under much more favourable circumstances than while the parts are in a state of inflammation. Many patients prefer the inconvenience of the epiphora to that from the use of the style, when the matter is fairly explained to them. I have not alluded to the ancient plan of introducing a tube into the passage, so extensively practised by Dupuytren according to the reporter of his lectures, because I think the extensive practice of any operation is not conclusive evidence of its superiority. A fair question to put with reference to the gasconade, that three thousand tubes had been introduced into the lachrymal passages by that gentleman, would be to inquire what became of those tubes, and how the cases terminated. The opinion of Mr. Ware, formed on a calm comparison of the plan with that of the common style, appears to justify the preference given to the latter by English surgeons."—*Dublin Journ. of Med. Science, March,* 1836.

SURGERY.

40. *Case of Partial Amputation of the Foot.*—*Secondary Hæmorrhage.*—*Recovery.* —The following interesting case of partial amputation of the foot, is recorded by JAMES SYME, Esq., in our *Edinburgh* cotemporary for January last.

"A—— P——, aged 12, applied at Minto House in the beginning of May, on account of a carious affection of the foot, which had existed for more than two years, and latterly reduced her general health to a very great degree. Her friends were willing that the foot should be amputated; and it seemed at first that nothing less severe would be sufficient for her relief, the whole of the tarsus being apparently implicated in the disease. By carefully examining the different sinuses, however, I ascertained that the joints between the *tibia* and *astragalus*, and *astragalus* and *os calcis* were sound; and, therefore, saw no objection to Chopart's operation, since, if any part of the disease were left by it, there would be plenty of room for its removal.

"This proposal was carried into execution on the 20th of May. The articulating surface of the *os cuboides* was divested of cartilage and apparently dead, and the corresponding surface of the *os calcis* was discoloured. I thought it right to remove this portion, and easily did so with a strong knife. There was then nothing left in the stump at all suspicious.

"Every thing went on well for a few days after the operation, but the wound bled occasionally during the following week. One of my pupils, who had charge of the patient, was repeatedly sent for on account of hæmorrhage, which on his arrival he either found had ceased, or readily arrested by the application of cold. Thinking it necessary to interfere more effectually, as she had become extremely weak, and quite exsanguine in appearance, I separated the flap, and perceived arterial blood issuing from a point, which proved to be a crevice in a small tough white bag about the size of a large pea. Regarding this as a recent fibrinous formation, I tore it away with forceps until nothing was left beyond the mouth of the vessel to which it adhered, viz. the external plantar. Graduated compresses and a bandage were then applied. The cure met with no farther interruption; and the patient soon regained her strength.

"It used to be alleged in objection to this operation, that the extensors of the heel being left attached, while the tendons of the flexors of the ankle were cut across, the stump would be pointed downwards, and rendered useless to the patient. Happening about twelve years ago to see a case at Göttingen, in which Langenbeck had recently operated, and understanding that he had done so previously on several occasions, I particularly inquired whether this inconvenience was experienced. Having been assured that it had not, I concluded that the objection was theoretical, and not founded on experience, and resolved that it should not deter me from

performing the operation in any case that might require it. I have accordingly operated six times with perfect success. In relating several of these cases in the foregoing reports, I took occasion to notice the objection which seemed to have prejudiced the profession against the operation, and endeavoured to remove it, as well by explaining, that the tendons when divided acquired new attachments to the neighbouring parts, as by stating the facts, that the stump was not rigidly extended, but remained completely flexible under the patient's control; and that, so far from being useless, it allowed walking and other kinds of progressive motion to be accomplished without deformity or lameness. At the meeting of the Association for the Promotion of Science in Edinburgh, in September, 1834, I showed that a patient, who had suffered partial amputation of the foot, four years before, could walk without perceptible defect, and move the stump at will."

The operation of Mr. WHATTON, noticed in our last number, (p. 524,) and which was received on its annunciation to the Medical section of the Dublin meeting, with high encomiums, Mr. Syme says cannot be regarded as a substitute for that of Chopart, since in the cases that require the latter to be performed, the foot is diseased from one side to the other. "The principle of removing part of the tarsus along with the diseased metatarsal bones," Mr. S. adds, "has been so long established, that it would be difficult to discover who had the merit of originating it. But the particular operation which Mr. Whatton relates, has been so fully described and illustrated by Mr. Aston Key,* (Pl. II. figs. 1, 2,) that I am at a loss to understand how any claim to the merit of originality on account of it should at this time have been either advanced or conceded."

---

41. *Dislocation of the Thigh Bone into the Ischiatic Notch—Reduction on the thirteenth day after the accident.*—By JAMES SYME, Esq. Lawrence Smith, aged 18, was admitted on the 10th of July, soon after having fallen from the roof of a house, four stories high, where he had been painting a window.

He lighted on the pavement, and appeared to have struck the small of his back, where a slight discoloration was next day perceptible. At the time of admission, he had not the command of his inferior extremities, and could not evacuate either the bladder or rectum. He was bled, and next day cupped on the loins, which were afterwards fomented. Under this treatment, he soon regained the power of performing his evacuations, and moving his limbs, but still complained of great pain in the back, and could not alter his position in bed without much difficulty. Thinking that his complaints depended on concussion of the spine, I abstained from farther interference, in expectation that the remaining part of his recovery would be completed by the resources of the system.

On the thirteenth day after the accident, wishing to ascertain what progress he had made, I desired him to try to get out of bed. He did so, and then presented an appearance of the right hip, that immediately suggested the suspicion of dislocation, which was confirmed by a careful examination of the joint. The limb when left to itself was slightly shortened and inverted, the hip and knee-joints were both a little bent, the hip appeared rounder than natural, and the head of the bone could be felt at the margin of the sciatic notch. By gentle extension the foot could be drawn nearly, if not quite to the same length as the other, and the toes could be turned outwards until their direction was straight, but not any farther than this. When freed from restraint, the limb immediately resumed its former position. The thigh bone could not be brought into the same line with the trunk, and when this was attempted by pressing it down upon the bed, the patient arched his back, which in its turn could not be depressed until the thigh was allowed to rise.

The patient was carried into the operating room, and laid upon a mattrass on his sound side. A folded sheet was drawn under the injured thigh, with a small hair-cushion interposed between it and the perineum and fastened to the wall. Pulleys were attached by means of a skein of worsted to the middle of the thigh, so as to act in the direction which it assumed from the dislocation. I then placed a towel under the thigh, to elevate the head of the bone at the proper time, and held the ankle in my hand to effect the necessary degree of rotation. Extension had not been made for more than a minute, when the bone returned into its place.

* Averill's Surgery, 2nd edit. 1825, p. 184.

All the symptoms of the injury immediately disappeared, and the patient was soon dismissed quite well. A useful lesson may be drawn from this case as to the danger of overlooking dislocations in circumstances not particularly directing attention to their existence, and more especially when we can account satisfactorily otherwise for their symptoms. On this account, and also because, as Sir A. Cooper has remarked, "this dislocation is the most difficult both to detect and to reduce," I have related it fully.—*Ibid.*

42. *Aneurism of the right Subclavian Artery.*—A case of this, successfully cured by operation, is recorded by Dr. Hobart, of Cork, in the *Edinburgh Medical and Surgical Journal*, for January last. The subject of this case, was a man 38 years of age, and of good bodily health. The tumour appeared suddenly without any ascertainable cause; and when the operation was performed, was the size of a large duck-egg. The operation was performed as follows:—The patient was placed on his back on a table, with the shoulders a little raised, the head and neck inclined to the left side, and the right shoulder and arm drawn downwards: the integuments were carefully drawn down over the clavicle by an assistant, and Dr. H. divided them on the bone, by an incision about two inches in length, commenced at the outer edge of the sterno-cleido mastoid muscle, and extending towards the acromion. The integuments were then allowed to retract, and Dr. H. next cut through the *platysma myoides* and cervical *fascia*, completing their division on a director. The external jugular vein was drawn to the outer extremity of the wound, and retained there by means of a blunt hook. The cellular membrane and adipose substance, which were considerable, Dr. H. carefully detached with his fingers and the handle of a scalpel, until he arrived at the artery, where it emerges from the anterior *scalenus* muscle. He then carefully made an opening into its sheath, barely sufficient to allow the introduction of an ordinary probe, and avoiding all other disturbance of its contiguous connexions, cautiously passed a common aneurismal needle armed with a single silk ligature round the vessel, and tied it. The tumour now became somewhat flattened, all pulsation stopped, and the radial artery ceased to beat. The lips of the wound were then brought together, and kept in apposition by means of a single suture and adhesive straps. The limb was enveloped in a flannel bandage, and the patient was put to bed. The progress of the operation was not retarded by a single accident, and the demeanour of the patient throughout was most satisfactory, having borne it with the greatest calmness, and never uttered a moan.

Nothing unusual occurred during the progress of the case, and in less than a month the patient was able to leave his house. He subsequently was able to return to his business. All the movements of the limb are performed without the slightest inconvenience. The tumour gradually declined, and at the date of the report, less than three months after the operation, scarcely a trace of it was remaining.

43. *Fracture of the Lower Jaw at the Symphysis.*—An example of this accident, which Boyer asserts never to happen, is recorded by Mr. Syme in the *Edinburgh Medical and Surgical Journal* for January last. It occurred in a man 28 years of age, and was produced by a blow with a fist. The fracture was seated exactly at the symphysis, and extended perpendicularly downwards between the two front incisor teeth. There was hardly any tendency to displacement, and the treatment was consequently very simple.

44. *Amputation at the Hip Joint.*—This operation was performed not long since at l'hôpital St. Louis, by M. Gerdy. The subject of the operation was a woman 42 years of age, affected with an enormous cancerous tumour, situated at the fore and upper part of the left thigh. This tumour was moveable, and the surgeon hoped to be able to extirpate it; but a considerable hæmorrhage at the commencement of the operation required the femoral artery to be tied, and the patient being supposed to be too weak to bear the loss of blood, which would follow the removal of the tumour, it was decided to amputate the limb at the hip joint. The wound was not united by the first intention: on the ninth day tetanic symptoms appeared, and the patient died. On examination, cancerous tumours were found on the surface of the pleura, and in different parts of the lungs. The only case of amputation at

the hip joint, which has been successful in France, is said to be that performed by Delpech in 1823; and in this case, union of the wound, by the first intention, was effected. That the attainment of this object in M. Gerdy's case would probably have not prevented the fatal termination, may be admitted; but it is certain, that the establishment of such an immense suppurating surface, as that produced in the operation he performed, was calculated to exhaust the patient, who we are told was too weak to bear any considerable loss of blood, and lessen the chance of recovery.—*Bulletin Gén. de Thérap.* 30th *May*, 1835.

45. *Ligature of the Posterior Iliac.*—Professor BARONI, of Bologna, has successfully performed this operation on a farmer 22 years of age, who in falling from a tree, was wounded by his sickle entering deeply into his right buttock.—*Lancette Française,* 7th *Nov.* 1835.

46. *Chloride of Lime in Wounds attended with great pain.*—The *Gazette Médicale de Paris* for 31st October, 1835, contains an interesting memoir by Dr. CHOPIN on this subject. In six cases in which he has tried the application, and the details of which are given, it acted promptly in calming the most violent pains in wounds, produced by different causes. One of these cases we will give a brief summary of. It was that of a young man, 18 years of age, whose hand was terribly shattered by the discharge of a pistol, whilst he was loading it. When seen by Dr. C. the wound had become extremely painful, the pain extending to the axilla. The hand was placed in a vessel of tepid water, to which one spoonful of a saturated solution of chloride of lime was added, and in less than a minute the pain began to subside, and in five minutes it had so much lessened, that Dr. C. could turn the limb in all directions and dress it without causing pain. The dressings were kept constantly wet with the solution, and the cure was effected without any untoward symptoms.

47. *Chloride of Soda for Sore Nipples.*—Dr. CHOPIN in the Memoir just noticed, says, that of all the means recommended for the cure of sore nipples, nothing has so well succeeded in his hands, as frequently repeated lotions with chloride of soda. In one or two days, he says, it will often effect a cure.

48. *Aneurism by Anastomosis.* A paper on this subject was presented to the Medical Section of the British association by Mr. ADAMS. The author commenced by stating, that it was Mr. J. Bell who had the merit of first directing the attention of the profession to this disease. Many were acquainted with it before his work appeared; the true arterial form of it, however, was generally confounded with true aneurism, and the operations, which were performed in ignorance of its nature, were imperfect and unsuccessful. It was pleasing to reflect on the good which Mr. Bell had effected; but still it must be confessed that our knowledge of the nature, form, and anatomical characters of this affection were limited, and he did not think he was occupying the time of the section unnecessarily in attempting to throw additional light on the subject.

Much variety prevailed in the external characters and appearances of this disease. It sometimes occurs in the form of stains or nævi on different parts of the body of a Modena blue colour; in other places it assumes a vermilion tint. Here the disease is confined chiefly to the capillary vessels; in the former case to the arteries, in the latter to the veins. In others of these nævi a pulsation is found to exist; here the aneurismal condition is not limited to the capillaries, and extends to the neighbouring arteries. These grow very rapidly, bleed frequently, and often require an operation to save the patient's life. This operation, however, was not always successful. The surgeon is called on to operate at great risk, and it has not unfrequently happened, that in cases of the disease in children, death has occurred *in ipso opere.* Where these aneurisms are confined to the capillary vessels, the disease is generally mild; when they extend to the larger arteries and veins the consequences are more dangerous.

The first or simple form of the disease commences like a stain in the skin, of a claret or rose colour. Sometimes they are very small, sometimes they extend nearly over the whole body; the condition of the skin is altered, but there is no tumefaction. They occasionally remain quiet for years, but sometimes, parti-

cularly about the period of puberty, suddenly increase in size. Occasionally this state of the vessels is not limited to the skin, but also extends to the muscles, and even exercises inconvenient pressure on bones. One of the most remarkable forms of the last mentioned affection is that which sometimes attacks the tongue. It is seated in the veins, grows slowly, and has no pulsation. At other times it assumes a sudden increase of size, particularly in females during the menstrual period. [Mr. Adams here exhibited a drawing of this disease, as it appears in the tongue of a female. The tongue is much enlarged, and protrudes from the mouth. This, however, does not interfere with the patient's singing, or the pronunciation of the lingual consonants.]

The next case which he had to lay before the section, was one which had been operated on some years back at Mercer's Hospital, by Mr. Reid of this city. The disease had followed an injury of the lip, received at Trafalgar, and like the former was confined to the veins. Pressure had been tried in this case without effect; the tongue increased in size, and being frequently wounded by the sharp points of the teeth, vast quantities of blood were lost. It was to arrest one of these hæmorrhages, that the common carotid artery was tied. It had the effect of producing a temporary shrinking in the tumour, but the disease remained unchecked, and the patient died some time afterwards from hæmorrhage, produced by sloughing of the carotid at the situation of the ligature.

The next class of nævi were those connected with the arterial system. Mr. Adams here exhibited several beautiful drawings, by Mr. Conolly, to illustrate this form of aneurism by anastomosis. He detailed the particulars of a case, which had been operated on successfully by Mr. Carmichael. The operation consisted in passing a number of threads (twelve or fourteen) through the tumour; this was followed by suppuration of the parts and withering of the aneurismal vessels. The only thing further he had to observe, with respect to this form, was that in females it sometimes became the seat of vicarious menstruation.

The second part of the paper was occupied in considering the subject of aneurism by anastomosis. This disease was also first described by Mr. Bell, and is much adverted to by the French. In this disease the arteries are not only dilated, but also coiled up and extremely tortuous, presenting at various parts of their course nodosities, somewhat resembling the bulb of a thermometer. M. Breschet who has paid a great deal of attention to this disease, expresses in one of his publications, the regret he felt at not having had an opportunity of studying the disease in the living. Mr. Adams had a regret of an opposite description, he had not been able to examine it in the dead.—It was pleasant, however, to reflect, that the facts recorded by each would match the other, and tend to give a correct general view of the disease. [Mr. Adams here exhibited drawings illustrative of the form of aneurism under consideration.]

Aneurism by anastomosis is a disease in which the patient may live for years. The woman to whose case he had just referred, died not of aneurism but of consumption, and he had known patients to live with it for twelve, fourteen, and even seventeen years.

The last case to which he would allude was that of a woman whom he had recently visited, and whom he would be happy to shew to any gentleman wishing to examine the disease. In this case the disease had commenced about fourteen years since, on the left side of the neck, in the vicinty of the ear, and was attributed to a blow. It extended gradually downwards, and at present occupies the whole of the supra-clavicular fossa. The *fremissement* is not only distinct in the tumour, but can also be felt and heard over the mastoid bone on the opposite side of the neck. Its diagnosis is established by the history of the case, its duration, the appearance of the veins on the surface, and the remarkably distinct purring thrill.

With regard to the structures of these aneurismal conditions much obscurity still exists. Mr. Bell says, that it consists in a tortuous condition of the arteries. He states that there are three peculiarities to be observed in all such tumours; first, a congeries of small arteries; next, a congeries of absorbing veins; and lastly, of intervening cells.

Mr. Adams here took an elaborate review of the different accounts given of aneurisms by anastomosis, and stated that the structure of these tumours seems to be analogous to the erectile tissues. One of the best modes of ascertaining their

21*

structure had been adopted by the late Mr. Shekleton; this gentleman having injected the part through one of the largest vessels, and then by placing it in an acid solution, corroded its animal parts, leaving the vessels entire. A magnified drawing of this preparation was exhibited to the meeting, shewing the retiform arrangement of the vessels, their tortuosity, and their abrupt enlargements at certain spots, and contractions at others. Mr. Adams concluded his elaborate paper by some interesting observations on the tortuosity of arteries.—*Dublin Journal Sep.* 1835.

49. *Bony union of fracture of neck of Femur.*—Mr. Snow Harris communicated to the Medical Section of the British Association an example of this. The subject of the case was a gentleman who had received an injury by being thrown from his gig several years before. He had got up and walked immediately after the fall, but continued lame from that period to the time of his death. He had been attended by some of the most celebrated surgeons in London; but they had not been able to determine whether there was fracture of the bone or not, but kept him lying on a sofa for nearly twelve months. The injured limb was shortened, the foot everted, the thigh wasted, and, owing to the constant inclination of the body forwards on one side, curvature of the spine took place. Some time ago the gentleman died, and Mr. Harris, being anxious to examine the parts, removed the acetabulum and a portion of the thigh bone, which he should feel much gratification in exhibiting to the meeting. He had found the trochanter higher up than natural, and the neck of the bone shortened. Lymph was thrown out on the head of the bone and about the ligaments of the joint. Mr. Harris here exhibited the bone. He said that a section of it showed plainly the line of osseous union all throughout.—*Ibid.*

50. *Nitrate of Silver for the cure of Chilblains.*—Dr. Gamberini recommends the following remedy to prevent the ulceration, and even to disperse chilblains; they should be moistened with a piece of linen slightly soaked in water, so as to keep the skin soft and moist, without being exactly wetted; and when thus prepared, a piece of nitrate of silver is to be rubbed on the chilblain; moderate pressure should be used, and it should be slowly passed several times over the part. In a few minutes the epidermis becomes very slightly whitened; at the end of some hours, and generally when the part is exposed to the light, as in the chilblains of the hands, the epidermis becomes brownish, and presents a greater consistence to the touch. The effect is just the same as that produced on the fingers when a piece of this caustic is handled without precaution. A strong pressure, or more prolonged application of the remedy will denude the part; the same thing will happen if the surface be too much wetted before cauterization. But, in general, we may say that when the cauterization is maintained within proper limits, it causes no pain, and rarely a slight pricking.

This simple treatment relieves the patient from all inconvenience in the course of a few days. It may, however, become necessary to re-apply it once or twice.—*Lond. Med. & Surg. Journal, Feb.* 20, 1836.

51. *Ununited Fractures successfully treated by means of a Seton.*—Two cases of this have been recorded in *Il Filiatre Sebezio,* (May, 1835,) by Dr. Portal. The subject of the first case is a stout peasant, who was admitted into the hospital at Palermo, in September, 1834. In July preceding he had received a gunshot wound in his left arm, which caused a comminuted fracture of the humerus at its middle third; a few splinters had been extracted by a surgeon on the instant. It was two months from the occurrence of the accident that he presented himself at the hospital with the ununited fracture, which was the seat of very sharp pains on the least motion. Matters being in this state, Dr. Portal, previous to amputation, wished to try the effect of a seton introduced between the two ends of the fractured bone. During the first three days the seton caused pain and inflammation, which were treated topically by emollients, and internally by the potus tartari. On drawing the seton on the fourth day a great quantity of pus escaped from the wound, but its issue diminished gradually: the rubbing caused by the seton between the two fragments gave issue to a splinter of bone. From this moment the pains diminished greatly: the seton was allowed to remain in for

twenty-four days, during which time the pus became improved both in quantity and quality. The seton was then withdrawn, and the wound dressed with styrax ointment; a circular bandage and graduated compress was the means of keeping up a light pressure during the month of October and part of November, after which the patient left the hospital perfectly cured.

In another case, that of a child aged two years, who had fractured the right thigh in its upper third, after every other means had failed of causing union of the fracture, the seton was introduced, and several fragments of bone came away that had remained for three months. There was some shortening of the limb, but the thigh acquired such solidity that the patient left the hospital, perfectly cured, in the following February.—*Archives Générales*, July, 1835.

52. *Case of Artificial Anus, produced by a Lance Wound, cured by a new method.* By Prof. DIEFFENBACH.—A Polish officer received, in combat, a thrust of a lance in the abdomen: the blade penetrated up to the shaft. The result was a wound about an inch broad and two inches from the umbilicus, from which blood and excrementitious matter were simultaneously discharged. The patient's life was saved by an antiphlogistic treatment, but an artificial anus remained, which resisted the means used by several surgeons to close it. The whole circumference of the opening was surrounded with a hard cicatrized mass, whose long diameter was five inches, and its breadth two inches. The middle of this mass was occupied by a round hole, which easily received the tip of the middle finger: its inner edge was lined with the mucous membrane of the intestinal canal; probably the transverse colon. An examination of the cavity of the intestine showed not only that it was united to the abdominal parietes, but that its calibre was considerably diminished. As soon as the opening was uncovered the contents of the intestinal canal issued forth; while it was compressed with a pelotte and bandage they were retained. However, when the patient went to stool, it was impossible to prevent a discharge of fecal matter through the artificial anus. After various unsuccessful attempts, the patient had recourse to a celebrated physician at Berlin, who thought he could close the opening by a *milk diet*, restricting the use of all solid food. The treatment had no other effect than that of rendering the patient exceedingly thin. He now placed himself under the care of M. Casper and the author. The first care of the latter surgeon was to restore the patient's strength by proper diet, &c. They then attempted to destroy the hard edges of the orifice with the actual cautery, but this means was also unavailing: an ill-looking, pale, granular mass constantly shot up, which they could not get rid of. M. Dieffenbach now determined on endeavouring to close the artificial anus with a portion of integument taken from the sound parts; for this purpose, he commenced by cutting away the hardened edge of the orifice, and then made a transverse incision of the skin, three inches long, above the wound, which this had left: a flap of skin, two inches broad, was dissected off, and this formed a kind of bridge that was connected by its two extremities only with the integuments of the abdomen. After having arrested the hæmorrhage, M. Dieffenbach turned this flap downwards over the artificial opening, and united its edge with the lower edge of the circumference of the round cavity: here the two edges were united by a great number of small needles and sutures. The large wound thus produced was filled with charpie, to diminish the dragging and extension of the stitches. However, this experiment failed, the flap of skin died, and the granulations which sprung up were not sufficient to close the opening: the latter remained, although somewhat diminished. The author now proposed a method of treatment quite different; this consisted in destroying, with the actual cautery, the edge of the bowel united to the orifice of the wound, and also, at the same time, a considerable portion of the intestine within the orifice, sparing, however, at each cauterization, the external integument. The edge of the intestine was touched with the actual cautery the first day; a few days later he introduced a hot iron, crotchet-shaped, and as thick as a pen, into the intestinal cavity, and touched its parietes all round. This gave little or no pain, and was followed with a happy result. The opening was immediately reduced by the rapid growth of granulations; and finally, after a treatment of nine months, the fistula was completely closed.—*Lancet*, Jan. 9, 1836, from *Kleinert's Repertorium*, Nov. 6, 1835.

53. *Plan of tying the Internal Mammary Artery.* By M. BONNAFONT, Demon-

strator of Anatomy at the Hospital of Instruction of Alger. (*From the French Lancet*, August, 1834.)—The internal mammary artery is far from being beyond the action of external bodies. Placed at first behind the superior third of the posterior surface of the sternum, it diverges by degrees from it to run between the fibro-cartilages of this bone and the interval corresponding to the fifth, sixth, seventh, and eighth ribs, where it is distant almost an inch from the external border of the sternum. Placed immediately on the pleura, covered by the intercostal muscles and the integuments, it may be easily wounded. The calibre of this artery being sufficiently great to produce mortal hæmorrhage, if wounded, it is of consequence to know how to stop this fatal bleeding by placing a ligature on the artery. The following is the operation recommended.

1st, Cut the integuments down to the external intercostal muscles, to the extent of two inches in lean, and two and a half in fat subjects, beginning at the external border of the sternum, encroaching a little on its external surface, and stretching to the middle of the corresponding intercostal space, following a line parallel to the axis of the ribs.

2nd, Tie carefully the small arterial branches, which might embarrass the operator by the blood which they furnish.

3d, Cut, by means of a director and straight-bladed bistoury, layer by layer, the external and internal intercostal muscles, taking care, in cutting the latter, to place the director in a sufficiently oblique direction, to avoid wounding the pleura. That being done, the internal mammary artery will be distinctly observed placed between the nerve, which is situated externally, and the vein, which is placed internally, and above the pleura, to which it nowhere adheres. Nothing is then easier than to place, by means of a crooked needle, or a director a little bent, a ligature on the artery. The wounding of the pleura may be avoided by taking the precaution mentioned above.

As the inferior portion may furnish blood from its anastomosing with the epigastric artery, it may be tied by the same operation in the intercostal space below. —*Edinburgh Med. and Surg. Journ.* January, 1835, from *Lancet Française,* Aug. 1834.

MIDWIFERY.

54. *Acute pain in the Vagina after delivery.*—Dr. CHOPIN, in an article in the *Gazette Méd. de Paris,* (31st Oct. 1835,) states, that shortly after delivery, and, especially of first children, he has discovered on the posterior surface of the vagina of the mother, small excrescences of the size of a grain of wheat, rarely of the size of a small pea, and of a deep red colour. They are easily recognised by their saliency, their exquisite sensibility, and their deeper colour than that of the vagina. The pain attending them, he describes as more insupportable than that of labour. His patients describe it as that of a hot iron in the vagina. He says that the pain is relieved by the application of lint, dipped in chloride of lime, to the tumours.

55. *Cæsariam operation.*—Among the interesting cases laid before the Medical Section of the British association at the meeting in Dublin, was one in which the cæsarian operation was successfully performed, communicated by G. B. Knowles, Esq., of Manchester; the patient after being delivered of her fourth child, received an injury, which was followed by pain of the hip joint, and loss of power in the lower extremities. Since the commencement of this disease she had several miscarriages. In November last she was again seized with labour pains, and on examination, it was found that the sacrum projected in such a manner as to feel like the head of the child, narrowing the lower outlet of the pelvis to two inches by one. The operation was performed thirty hours after the commencement of labour, and six after the rupture of the membranes. Though the incision was made over the placenta, very little blood was lost, and the patient bore the operation extremely well. With the exception of tympanitis, she had no bad symptom for the first two days; on the third she had vomiting and hiccup, which yielded to treatment, and the tympanitis was removed by the use of turpentine. Owing

to the distension of the belly, the lips of the wound could not be brought into apposition until the fifth day; in the interval a limpid fluid was discharged from the opening. The patient recovered in about a month.—*Dublin Journ. Sept.* 1835.

56. *Recovery from Asphyxia in a new born infant.*—The following case, very remarkable and interesting from the length of time animation was suspended, has been communicated to the Edinburgh Medico-Chirurgical Society, by Dr. MACWHIRTER; and is contained in our esteemed *Edinburgh* contemporary for January, 1835.

"I was called, at about half past 11, P. M., to a lady who had been several hours in labour. I found the *os tincæ* expanded to the extent of a crown piece; the membranes pressed forward by every pain, and the presentation '*breech,*' pain recurring regularly and forcibly every four minutes. About a quarter before one, the membranes gave way, the *liquor amnii* was discharged, and the labour, which was a first one, advanced slowly, until half past one, when the breech was born. Suspecting that resuscitation would be necessary, I desired the nurse to have warm water at hand. The body and head were long *in transitu;* the funis was round the neck twice; I disengaged it, but could feel no pulsation. I got my fingers into the mouth of the fœtus, and succeeded in bringing it beyond the verge of the perineum, but it did not breathe. In about ten minutes, by management and the uterine action, the head was delivered, and along with it the placenta.

"The infant appeared *dead;* indeed, it was thrice felt convulsed *in transitu.* The face was as white as paper, but there was some colour in the lips; still no pulsation of the heart could be felt.

"I placed the child, with the placenta attached, in a warm bath; gently inflated its lungs with my own breath, in the usual way; rubbed brandy on the chest, abdomen, and head, spine, extremities, &c. As the funis when cut did not bleed, I therefore tied it. After immersion for about half an hour, I took it out of the bath; dried, and wrapped it in warm flannel, and made the nurse carry it near the fire. I then continued the gentle inflation from time to time, and the spirituous friction, to the extent of nearly two bottles of brandy and whiskey, occasionally slapping the bottom, when at length, about forty or fifty minutes after birth, it gave a sob. This was indicative of existing life, and encouraged me to persevere. It continued to sob or gasp at intervals of a minute or two, and I now found that I could feel the heart beat.

"The above means were most perseveringly continued, until the circulation and breathing very gradually increased. At the end of an hour and a half, the child gave a whimper; the eyes opened; the lips became red; it breathed regularly; cried lustily. It lived, and continues to live."

57. *Case of Cæsarian Section successfully performed.*—By Dr. WITTEKOP, army surgeon at Geldern. A strong healthy peasant, who had been delivered by perforation of the child's head three years before, demanded on this occasion that the cæsarean operation should be performed. The conjugate diameter of the pelvis was less than two inches. She felt distinctly the movements of the child; the labour-pains were very frequent and severe; the liquor amnii discharged; the os uteri moderately dilated. The head was the part which presented. The author, having bled the woman, and emptied the bladder with a catheter, made his incision along the linea alba. The loss of blood was moderate, and the infant, with the placenta, easily extracted: the intestines did not protrude through the wound. After the operation the patient seemed well enough; but as the bowels were constipated, an emuls. c. sal. glaub. et nitr. was given. She was also ordered a draught of the carbonate of soda, with some laurel water and syrup of ipecacuanha. Finally, a lavement was thrown up. The bowels, however, remained obstinately costive. The patient vomited frequently, and was seized with constant hiccup and great anxiety and agitation. The abdomen appeared much developed between the umbilicus and false ribs; almost tympanitic; however, there were no absolute inflammatory symptoms. The patient was now ordered an inf. fol. sennæ compos., to be followed by an enema of glauber salts with hyosciamus. This produced at first several feculent stools, and a discharge of flatus issued, succeeded by acute pain in the pelvis; at the same time the discharge of bloody serum from the inferior angle of the wound, left open on purpose, was much diminish-

ed. In order to prevent the passage of the secretion from the wound into the abdominal cavity, the woman was now placed on her abdomen, and a clyster of starch, with opium, was administered at once. The purging and painful sensations soon diminished, and the discharge from the wound took place with its former abundance. Cicatrization now rapidly advanced; the patient taking bark, columba root, and wine, and on the eleventh day after the operation the patient was able to leave her bed. The secretion of milk was small, and the infant was nourished artificially; however, it thrived well.—*Kleinert's Repertorium.*

58. *Case of Cæsarean Section successfully performed.*—By Dr. VON DER FUHR, of Dülken. The subject of this case was a female, 36 years of age. Labour had commenced twelve hours before the operation. This woman had already borne four children without any particular difficulty; but after her last delivery she commenced experiencing pains in the limbs, and especially in the region of the pelvis; these gradually increased to such a degree, that she was at last unable to move or walk. On examining the pelvis, it was found that the ossa pubis had inclined inwards towards each other in such a manner, that the arch of the pubis was completely gone, and the two bones formed an acute angle at the symphysis. The promontory could be easily reached with the finger; the antero-posterior diameter was two inches and a quarter; the transverse diameter was very small, and especially the oblique one. The whole inlet of the pelvis was considerably narrowed. Under these circumstances the author considered the only hope for mother and child lay in performing the cæsarean operation. This was accordingly done in the usual manner, and a healthy child extracted. After the operation the patient seemed more lively than could have been expected, but in a few days unfavourable symptoms set in, viz., frequent vomiting and costiveness. Some calomel with an occasional enema, was administered; this brought away a quantity of feces and wind, and the patient felt much improved. The amelioration continued for the following days: the lochia now set in, and milk was secreted from the mammæ; however, the wound did not present an appearance of speedy union; it was half open, and at the second dressing its edges were completely separated. The author, therefore, thought it best to heal by the second intention; the wound soon began to suppurate; every thing went on well, and it was healed in less than seven weeks. During this period the woman did not suffer from any of her former pains, and was carefully restored. The child died on the fifth week.—*Ibid.*

CHEMISTRY.

59. *Analysis of the Brain.*—According to M. COUERBE, the brain, when examined with a powerful microscope, appears to be composed of globules which are slightly elliptical, and are larger in the gray substance than in the white. These globules are coagulable by acids, like those of milk and the blood, and by a great number of other substances.

M. Couerbe finds in the brain:—1st. A pulverulent yellow fat, *stéarconote.* 2nd. An elastic yellow fat, *cérancéphalote.* 3d. A reddish yellow oil, *éléancephol.* 4th. A white fatty matter, *cérebrote.* 5th. Cholesterine, *cholestérote.* Added to these are the salts found by Vauquelin, lactic acid, sulphur, and phosphorus, which form a part of the fats above named.

Before the brain was submitted to various kinds of treatment, it was deprived of its membranous covering and washed with cold water, in order to separate, as nearly as possible, all the blood with which it is always impregnated; it was then macerated and digested in cold æther, and all that was soluble in this fluid was dissolved by maceration in repeated portions of it. The first contained but little of the fatty matter in solution; the æther appeared merely to expel the moisture of the brain, and they were separated together by decantation. The second portion of æther was very rich in fatty matter, and contained but slight traces of moisture: four macerations in æther are almost always sufficient to dissolve all the fatty portions of the brain. After treatment with æther, the brain was subjected to the action of boiling alcohol of sp. gr. 0·817: the boiling solutions were

filtered every time, and the boilings were repeated until they gave no precipitate on cooling; there then remained a mere agglomerated fibrous mass, which M. Couerbe calls *névriline.*

The alcoholic solutions were mixed when cold, and filtered to separate the deposit, which was washed with cold æther, in order to separate the fat soluble in this liquid; this is susceptible of crystallizing, and perfectly similar to that which is found in the æthereal solution, and which is *cholestérote.*

The powder obtained from the alcohol is very white and pure: it becomes slightly translucid by drying, and has then the appearance of purified wax. The alcohol from which this white powder precipitated, gave more of it by evaporation, mixed with some fatty matter which was separated by æther. The substance dissolved by the alcohol appears to be similar to that described by Vauquelin. M. Couerbe calls it *cerebrote.*

Towards the end of the evaporation of the alcohol, a sort of fluid fat is deposited, which is not the white fatty matter; it dissolves in æther, and is converted into oil during the spontaneous evaporation of that fluid. The alcoholic residue contains only osmazome, a free acid, and some inorganic salts.

The æthereal solution was distilled, in order to obtain the æther as well as the substances which it had dissolved. These were put into a capsule, in order to finish the expulsion of the æther. The fatty matters obtained were in considerable quantity, and in the state of a whitish, homogeneous, adhesive mass, under which there was frequently whitish granular fatty matter, almost entirely formed of cerebrote; this appearance was constant in the brains of healthy persons. This fatty matter was then treated with a small quantity of æther, which dissolved it entirely when free from the whitish granular fatty matter, but only partially when that was present.

This cerebrote is always found in the mass, distinct from other elements which accompany it when extracted from healthy persons; but, on the contrary, sufficiently combined with them to become soluble in a small proportion of æther, when taken from the brain of a maniac.

When, then, æther leaves any white substance, it is separated by the filter, and when æther dissolves it entirely, it is to be evaporated to obtain more of the substance; the residue is to be subjected to the action of boiling alcohol, which dissolves the three fatty matters, among which is the cerebrote, and leaves undissolved a yellow solid fat resembling wax. The substance is almost totally insoluble in alcohol: it is to be washed several times with boiling alcohol to separate extraneous matters. The substance is not yet pure; it contains another peculiar yellow matter that is separated by cold æther, which dissolves the greater part of the mass, and leaves the other portion in the form of a brown powder. By filtering and washing this brown powder with æther, and then evaporating the æthereal solution, both these substances are obtained.

The portion soluble in æther is of a fawn colour: it cannot be sufficiently dried to be pulverized; the other portion is of a lighter colour, readily dries, and is easily reduced to a fine powder by trituration. The first M. Couerbe calls *cérancéphalote,* and the second *stéarconote.*

When the alcohol, holding the remaining matters in solution, is filtered through animal charcoal, and is exposed to spontaneous evaporation, it deposits a considerable number of crystals, which are very white and have a greasy lustre: they are to be pressed in fine linen, and the alcohol by evaporation furnishes more crystals, which are to be added to the first.

When the alcohol has been weakened by repeated evaporations, it becomes turbid, and yields crystals of the same matter mixed with red oil, which precipitates to the bottom of the vessel; it is difficult to obtain this in a pure state. There often comes down with it some solid matters which give it consistence, and which give it the appearance of fat or even several fatty matters. In order to separate the oil, it must be subjected to a slight pressure in a cloth, and alcohol poured upon it, which leaves the crystals. This alcohol is turbid on account of the oil which it contains. Some æther is to be added to it, which redissolves the oil, and renders the liquor clear, when exposed to spontaneous evaporation. A part of the æther slowly evaporates; the remainder holds the crystalline matter in solution, and allows the oil, as it is formed, to precipitate to the bottom of the liquid. When the stratum is rather thick, it is to be removed by a pipette and

filtered, and it is then pure and reddish. This oil M. Couerbe calls *éléancephol*, or oil of the brain.

As to the very abundant portion of the brain remaining after treatment with æther and alcohol, and which the author calls *névriline*, it is partly composed of albumen, coagulated globules, and of a membranous substance soluble in potash.

Analysis of the preceding Substances.

Cerebrote.—M. Vauquelin appears to have been acquainted with this substance, which he has described under the name of *white fatty matter*, and which has since been called *myelocone* by Kühn; but, according to some of the characters which M. Vauquelin has assigned to his white fatty matter, it seems that he did not obtain it pure, since he says that it is fusible and viscid, whereas cerebrote is infusible, and does not stain paper. When properly dried at a gentle heat it becomes friable, and may be pulverized; it is soluble in boiling alcohol, and but slightly so when it is cold. The process for extracting it is dependent upon this difference. It does not saponify with a solution of potash or soda, a property also observed by Vauquelin. Cerebrote is composed of

Carbon - - - - - - -	67·818
Hydrogen - - - - - -	11·100
Azote - - - - - - -	3·399
Sulphur - - - - - -	2·138
Phosphorus - - - - - -	2·332
Oxygen - - - - - - -	13·213
	100·

Vauquelin does not mention the existence of sulphur in it.

Cérancéphalote.—This substance is solid, brown, insoluble in alcohol and in water, but dissolved by 25 times its weight of cold æther. It softens by heat, and without becoming perfectly fluid; when dried it is elastic, like caoutchouc. M. Vauquelin has not mentioned this substance, but Kühn appears to have had a glimpse of it. Sulphuric acid attacks it with great difficulty; nitric acid reduces it to its elements, and converts the sulphur and phosphorus into acids. It is composed of

Carbon - - - - - - -	66·362
Hydrogen - - - - - -	10·034
Azote - - - - - - -	3·250
Phosphorus - - - - - -	2·544
Sulphur - - - - - -	1·959
Oxygen - - - - - - -	15·851
	100·

Stéarconote.—This is a fatty matter, which occurs mixed with the preceding. It is of a fawn colour, infusible and insipid, and by combustion gives an acid charcoal. Neither alcohol nor æther dissolves this substance; both the fixed and volatile oils readily dissolve it. Nitric acid takes it up after slight ebullition, and it reappears as a white fat, which is acid, soluble in boiling alcohol, and crystallizes in small laminæ, similar to margaric and stearic acids. This substance is composed of

Carbon - - - - - - -	59·832
Hydrogen - - - - - -	9·246
Azote - - - - - - -	9·352
Phosphorus - - - - - -	2·420
Sulphur - - - - - -	2·030
Oxygen - - - - - - -	17·110
	99·990

Eléancephol.—This is a reddish liquor; its taste is disagreeable; it is soluble in æther, fixed and volatile oils, and alcohol, in all proportions. When heated, this substance dissolves the other matters of the brain readily, and these impart consistence to it. Its composition is similar to the preceding.

Cerebral Cholesterine.—A crystallizable fatty matter, which, according to some authors, must be the result of some morbid change. The constant and considerable quantity which M. Couerbe found in the brain induces the belief that it is a widely diffused organic animal element. It is well known that MM. Denis and Boudet have found it in the blood. The cerebral cholesterine is perfectly similar to that of the biliary calculi. Their analyses gave M. Couerbe the same results:

Carbon	-	-	-	-	-	-	84·895
Hydrogen	-	-	-,	-			12·099
Oxygen	-	-	-	-	-		3·006

100.

This analysis differs a little from that of M. Chevreul, as follows:

Carbon	-	-	-	-	-	-	85·095
Hydrogen	-	-	-	-	-	-	11·880
Oxygen	-	-	-	-	-	-	3·025

100·

London Medical and Surgical Journal, 17th January, 1835.

60. *Ferro-cyanate of Quinia.*—M. BERTAZZI has given the following process for obtaining this salt. Take one part of sulphate of quinia, which is to be triturated in a glass mortar, so as to reduce it to a very fine powder; then add this to one part and a half of ferro-cyanate of potassa dissolved in seven parts of boiling water; after they have been well mixed, pour the compound into a vial, and expose it to a sufficient heat to cause ebullition, shaking it from time to time. The solution lets fall a substance of a greenish yellow colour, and of an oily consistence. After decanting the fluid, this precipitate is to be well washed in distilled water, and then dissolved in concentrated alcohol, and subjected to a heat of about 100° F., then filtered and slowly evaporated; this will afford a crystalline mass, corresponding to three-fourths of the quinia employed. When dried, it is of a greenish yellow colour, and very bitter taste, first giving the sensation of quinia, and then of hydrocyanic acid. It is partially decomposed by cold water, and completely so by hot; it then forms two salts, the one soluble, the other insoluble. It is very soluble in boiling alcohol.—*Am. Journ. Pharm.* from *Annali Univ. de Med.*

MISCELLANEOUS.

61. *Letter of the Royal Academy of Medicine to the Minister of Public Instruction, in reply to his inquiry whether it would be suitable for the French Government to establish the Homœopathy Society as a legal body.*—"Sir, Homœopathy, which presents itself to you with all the delusions of novelty, is by no means a novelty in art or science. It is a system which has been erratic for twenty-five years, first in Germany, next in Prussia, afterwards in Italy, and now seeks to be introduced into France; but every where it has struggled in vain to be admitted within the pale of scientific medicine. Often, and for long periods, have the Academy undertaken the test of its worth, nay, some of the members of the Academy have dipped deeply in the inquiry of its basis, progress, practice, and effects.

"Amongst us, as elsewhere, homœopathy has been submitted to rigorous logical tests, and from the onset logic has pointed out in the system such a crowd of formal opposition to the best established facts, such a number of most striking contradictions, so many absurdities palpable to the eyes of enlightened men, that the system is merely calculated to act on the credulity of the multitude, who do not think.

"We have submitted homœopathy to the proof of investigation in facts; it has gone through the crucible of experiment, and observation has furnished us as well as others with most categorical and most severe replies to our inquiries. For though some certain cures performed, as they say, by homœopathy may be blazoned forth, we know that the biased affection of a prejudiced imagination on the one hand, and on the other the healing powers of nature, call into question their title to success. On the other side, observation has given evidence of the mortal dangers of such proceedings in those frequent and severe cases that our art is called on to treat, where the physician may do as much evil by not acting at all, as by doing too much.

"Reason and experience are then both combined in expelling forcibly from the

understanding such a system, and leaving it to rise or fall by its own merits. It is for the interest of truth, and for the advantage of systems, particularly of systems of medicine, that they should not be either attacked, defended, persecuted, or protected by power. Sound logic is their surest verdict; their natural judges are facts; their infallible touchstone is experience. To abandon them to the free action of time should be their award: time is the only arbiter in these matters; it alone does fitting justice to vain theories, and establishes those truths which ought to constitute the domain of science. Let us add that foresight, which is the wisdom of every wise administration, imperiously demands such a determination.

"Every one is acquainted with the influence of precedents; let us ask what effect the establishing of a homœopathic dispensary would have? we should have dispensaries and hospitals for the mesmerists, the brunonians, for animal magnetism, and so on for every conception of the human mind. The government will appreciate as we do the consequences of such conduct.

"From these considerations and motives the Academy are of opinion, that the government ought to refuse its sanction to the demand made in favour of homœopathia.

---

62. *Forty days of the Homœopathic Clinic established in the Military Hospitals of Naples, under the direction of the Chevalier Cosme de Horatüs, and a committee of Physicians.* By the Chev. PASCULE PANVINI, Physician to Hospital Della Pace, &c. In a former number, (No. XXIX, for Nov. 1834, p. 254,) we gave the results of experiments made under the direction of the Russian government, to test the efficacy of the homœopathic medicine. These experiments were directed by a homœopathic physician, and were made in the wards of a hospital, selected by him. The results were conclusive against the value of the doctrine. A similar series of experiments conducted with every caution and directed by a homœopath, has been instituted at Naples by order of the government of that country, and with results even more strongly against the efficacy of the treatment. An account of these experiments was published in 1829, by Dr. PANVINI, in a volume of 187 pages. This work, not having yet reached us, we must be content to extract the following account of the experiments from a notice of the work in the *Journal des Connaissances Méd. Chirurg.* for July, 1835.

"It was announced in an essay on homœopathic clinic, that a great number of cases of simple fevers had been cured in two or three days; cases of violent phlegmonous angina tonsillaris in three days; of very violent pleuro-pneumony in six days; of gastric-nervous fever, threatening typhus, in five days; a fever, with erysipelas of the head in six hours; (the subject of this case was a homœopathic physician, Dr. Laraja;) measles complicated with typhus and numerous affections, in four or five days; blennorrhagia with ulcers and orchitis, in twenty-six days; and of simple blennorrhagia, in thirteen days; palpitation of the heart, which had resisted ordinary methods, had disappeared as if by enchantment and in the twinkling of an eye, &c. Such wonders strongly excited the attention of the physicians of Naples; every one desired to witness them; a plan for experiments was presented to the king, which he approved, and ordered it carried into effect. It was decided,

"1st. That a commission should assist at the preparation and administration of the medicines: that this commission should be composed of two professors of the University belonging to the Faculty of Medicine; of two members of the Medico-Chirurgical Academy; of two members of the commission of public instruction, and the principal physicians of the hospital.

"2nd. That these commissioners, after having verified the attenuation of the homœopathic remedies, should place the said remedies in a strong box, closing securely with two different locks, of which the keys of one should be given to the director of the clinic; and of the other, to the commissioners appointed to observe the treatment.

"3d. That the clinical ward should have but one door of communication, guarded by a sentinel; that it should have all the requisites for salubrity; that it should not contain more than from fifteen to twenty beds, and that two assistant physicians, one chosen by the prescribing physician, the other by the commissioners, should keep an exact register of all that happens to the patients; the phases of their diseases; their recoveries, and the deaths, if there be any.

"4th. That the admission of patients affected with acute or chronic affections, should be at the discretion of the prescribing physician and of the commissioners, with this condition, that the prescribing physician should not be obliged to accept patients acknowledged incurable, or those whose diseases being imperfectly determined, and equivocal, ought to be considered as unfit for positive experiment.

"5th. That the commissioners having determined the nature of the disease, the prescribing physician should describe the symptoms, administer the remedy, and prescribe the regimen.

"6th. That every day, the state of each patient should be verified by the prescribing physician and the commissioners."

These rules established, the next step was to proceed to the preparation of the medicines, or, as Doctor Panvini says, their attenuation. The homœopaths have adopted for multiplier in their attenuations the number *one hundred.* Thus, when they prepare a liquid medicine, they take one drop, which they mix with a hundred of spirits of wine, this is the first attenuation or dilution; for the second dilution they take ten thousand drops, and so on, always multiplying by one hundred, as far as the thirtieth or even fortieth dilution. Doctor Panvini has calculated how much alcohol is necessary for the dilution of a medicinal drop, and how much sugar is needed for the attenuation of a grain of powdered substance, so as to arrive at the thirtieth and fortieth dilution.

"The first dilution of a drop of tincture of camomile for example, would require, as has just been mentioned, the hundred drops of alcohol; the second, ten thousand drops, or very nearly one pound; the third, one hundred pounds, or near a barrel; the fourth, one hundred barrels; and continuing in proportion, the ninth would require as much alcohol as the lake Agnano could contain; the twelfth, one hundred millions of lakes of Agnano; the seventeenth, ten millions of Adriatic seas; the thirtieth, as much alcohol as the terrestrial globe could contain, all our planetary system, and perhaps, all the stars of the first and second size that can be seen on a fine summer's night; to which must be added, for the fortieth dilution, all the constellations that can be discovered from one pole to the other."

Pulverizable substances are used in similar proportions.

For those who regard as impossible these infinite dilutions, M. Panvini indicates the abridged method followed by the Hanhemanists, and which consists in taking for each dilution, not the whole of the liquid that is to be divided, but the hundredth or the hundred thousandth part alone, so that to arrive at the thirtieth dilution, thirty little parcels will suffice, each of which will contain one hundred drops of alcohol.

It is with medicines thus divided that experiments have been made.

In the selection of patients, the commissioners were careful not to take those which appeared to need energetic and prompt treatment, so as not to expose the life of any one. They first tried whether certain patients would not recover without the application of any remedy. Ten patients were then placed under observation. The prescribing physician wished to treat them; but the commissioners decided otherwise, and the ten patients recovered. One of them had a gastric fever, the homœopathic doctor wished him to take one drop of the tincture of St. Ignatius' bean, diluted to the twelfth degree, representing the quadrillionth part of the primitive drop; which, according to the calculation of Doctor Panvini, was equivalent to the dilution in as much alcohol as ten million lake Agnanos would contain. The homœopath physician protested against the expectant practice, fearing, he said, that a day's delay would jeopardise the life of the patient; the commissioners endeavoured to encourage him, depending upon a crisis. This crisis took place during the night. The next day half rations were given, and two days afterwards the cure was complete.

Homœopathy might have been glorified for these cures, which, however, can be attributed solely to the efforts of nature.

Passing next to the cases in which the homœopathic treatment was employed, Dr. Panvini speaks of the slight affections which were cured, but without the commission being able to discover, during the treatment, any of the effects attributed to the homœopathic remedies. These cases were six in number, viz. two cases of ophthalmia, two of rheumatism, one of simple blenorrhagia, and one of slight gastric fever; all diseases in which the treatment employed produced no

effect, and which would have been cured by regimen alone, perhaps even without restrictions in this respect.

The third series consists of more serious diseases. It is entitled, *Cases which required the aid of Art, and in which the Homœopathic Medicine proved itself wholly powerless.* One of the cases in this series is given, but our limits will not allow us to relate the details. It was a case of acute pleurisy, which got worse and worse under the homœopathic treatment, and on the fortieth day, when Dr. P. ceased to assist at the clinic, the patient was in a most precarious state, with fever, and puriform expectoration streaked with blood. The physicians who saw this patient thought he might have been promptly cured by the usual treatment. The other cases in this series consisted of syphilitic diseases, ophthalmia, and enteritis, all of which became worse during the homœopathic treatment, and it was necessary to have recourse to the ordinary treatment for their cure.

Finally, in the fourth and last series, Dr. Panvini reports the experiments which he made himself with the remedies prepared by the homœopaths, without any effect being produced. Among the remedies he employed were the staves-acre, the bryony, the belladonna, the pulsatilla, &c.

On the whole, it results from forty days homœopathic treatment, made under the observation of the commission appointed by the King of Naples, that this treatment has no effect, and that it had the serious inconvenience, for some patients, of retarding the employment of remedies which might have cured them.

Nevertheless, the physician who directed the treatment, was M. de Horatiis, the physician who had boasted the preceding year, of marvellous cures, and the author of the work entitled *Essay on Homœopathic Medicine.* Alone, or surrounded by the partizans like himself of homœopathy, he performed progidies; in the presence of the commission he has not only failed to cure any one, but he allowed the condition of many patients to become aggravated, for the cure of whom it was necessary to have recourse to the ordinary treatment.

AMERICAN INTELLIGENCE.

Case of Cæsarian Section. Reported by M. L. Weems, M. D.—This case oc-
curred in Occognan, Virginia. The operation was performed by an empiric,
who then enjoyed an entensive practice in the adjoining county of Fairfax, but is
now no more. I was present at the operation, but, for reasons which will be ob-
vious to all, refused to participate in it. All the particulars of the case that could
be known by any but a physician, were familiarly known to all the citizens of the
village.

The subject of the case was —— Payne, a mulatto, æt. about 25, of the middle
stature, well formed, and the mother of three or four children. Her labours were
represented as having been severe. In the spring of 1827, having completed the
ninth month of her pregnancy, she was taken with severe labour pains, which,
after continuing two or three days, left her, undelivered. At this time she was
visited by Dr. Thornton, a highly esteemed practitioner of Dumfries, Va., who
afterwards informed me that, from a hasty examination, he had concluded her
pregnancy was extra uterine, but as he was compelled to leave her immediately,
and could not visit her again, he had not a sufficient opportunity to form a satis-
factory opinion.

From this time she continued, regularly, about every four weeks, to experience
a return of the pains, which would generally last for two days, and then leave
her as before.

This state of things continued until June, 1828, at which time I was invited to
witness the operation, and saw her for the first time. She was now very much
emaciated. For several months she had experienced an offensive discharge from
the vagina, and had been more harassed by the pains.

Between twelve and fifteen months had now elapsed since the commencement
of labour, and of course between twenty-one and twenty-four months since con-
ception. Her patience was entirely gone, and she was anxious for the opera-
tion. This was performed by the oblique section, in presence of William S.
Mason, Esq., of Fairfax, myself, and three or four citizens of the village, whose
names I do not recollect. The epigastric artery was divided, but was secured
without difficulty. Not more than one or two ounces of blood was lost, none of
which was from the uterus. The uterus contained the remains of a fœtus in a
half dissolved state, many of its bones being detached and bare: a large propor-
tion of the soft parts had been dissolved by putrefaction, and had been discharged
by the vagina. On removing the remains of the fœtus, the internal surface of
the uterus, for several inches around the os uteri, was found lined by a crust of
osseous matter, which formed a smooth and perfectly continuous surface, except
at the os uteri, where there was an opening sufficiently large to admit the finger.
The crust was about half a line thick, possessed considerable strength, and ad-
hered firmly to the uterus, from which it was removed in small flakes with some
difficulty. The pelvis was well formed and capacious. The uterus showed no
disposition to contract. The wound was dressed in the usual way, except that
two or three stitches were taken to close the incision in the uterus. At the next
dressing the wound appeared unfavourable, but after the third dressing it con-
tinued to improve. The woman remained free from fever, said she was getting
better every day, and was elated with the hopes of a speedy recovery. She con-
tinued to improve until about the middle of the second week, when she violat-
ed the rules of diet, by taking animal food and drinking cider; directly after
which she was seized with fever, and the usual symptoms of violent inflammation
of the uterus and peritoneum, and in about forty-eight hours after the attack she
died. The body was not examined; nor would the examination have been inter-
esting, as it had been fully ascertained during the operation that the osseous in-
22*

crustation was the only obstacle to delivery: that it was a sufficient obstacle cannot be doubted.

This case is, I believe, unique. Morgagni relates a case, in his work on the seats and causes of diseases, (vol. ii. p. 423,) in which the whole substance of the uterus was converted into bone. Baillie, in his Morbid Anatomy, says, "The uterus has sometimes its substance more or less converted into bone." But these cases only relate to the uterus in its unimpregnated state. In the above case the transformation took place about the full period of gestation, and only in the mucous membrane, or in the submucous cellular tissue: whether in one or the other, or both, I cannot say. Andral, in his Pathological Anatomy, vol. i. p. 218 and 19, confines the osseous transformation to the cellular, fibrous, and cartilaginous tissues, and says he has never seen an instance in which it occurred in the submucous cellular tissue; he even appears to doubt that it has ever happened. But in the present case it is certain that the transportation did take place, either in the mucous membrane, or the submucous cellular tissue, or in both; for that it did not take place in the decidua, is evident from the fact that the cervix uteri was lined by the incrustation, and that it did not occur in the muscular coat is equally as evident; for if it had, the crust could not have been separated without the use of force that would have torn the uterus into fragments.

As to the cause of the transformation, Andral says it is generally preceded by active hyperemia, though he does not consider that state essential to it. In the present case we may safely say that the change of structure was the result of inflammation. That the woman had long laboured under slight inflammation of the mucous membrane of the cervix uteri, I think is proved by the severity of her former labours; for as there were no mechanical obstacles to delivery, the severity of those labours must in all probability have been caused by a rigid and painful state of the os uteri, resulting from inflammation of its mucous membrane.

This case, I think, should tend to lessen the dread entertained towards the Cæsarian section. For, notwithstanding this operation was performed in a rough and improper manner, and under every disadvantage, both as to the time and state of the patient, yet there was afterwards every reason to hope for a successful issue up to the time of the patient's imprudence. That the woman would have recovered, had she been more prudent, is a problem that can never be solved, but that she would have recovered, had the operation been properly performed and at the proper time, cannot be doubted, when we consider what she afterwards endured.

Report of a case wherein the Cæsarian Section was performed with fatal termination. By Dr. A. Brooke.—On the 6th of the 7th month, 1835, I was called to visit P. A., in consultation with Dr. Shreve and Foot. Patient a dwarf four feet one inch high, of full muscular developement; was delicate when an infant, but has since enjoyed good health. Menstruated first about her nineteenth year; was married last autumn, and is now at 31 years of age, in labour with her first child. The previous history of the case was as follows: She was taken with the pains of labour on the night of the 2nd inst., attended by a midwife. No progress being made after the lapse of 48 hours, Dr. Foot was sent for. A deformity of the pelvis being observed, he summoned Dr. T. C. Shreve to his aid the morning of the 5th. The latter gentleman found no dilatation of the os uteri, notwithstanding the long continuance of the pains, upon his examination of the case. The deformity was apparently so great, his mind fluctuated between the propriety of an immediate resort to the cæsarian section or embryotomy, whenever the state of the parts shall permit.

The opinion of his coadjutor decided him upon the latter course, and after waiting until 11 P. M., at which time the membranes were spontaneously ruptured, and the os uteri sufficiently dilated, he attempted to enter the cranium. The umbilical cord came down—the head offering the first presentation of Baudeloque. The extreme deformity rendering it very difficult to enter the fontanelle, and quite doubtful that delivery could be effected if that were succeeded in, he very properly desisted without any violent attempt, and desired further counsel in the case. I was called early the morning of the 6th, found the patient suffering vigorous pains; pulse accelerated to 112 within a few hours, and other symptoms of febrile excitement. Upon examination I discovered considerable tumefaction

of the os tincæ and external parts; forbidding in the present state of the case any attempt to deliver by the vagina, and so great a deformity as to render me altogether doubtful of its propriety under any circumstances.

The section having been decided on, and the consent of the patient and her friends obtained, about 9 A. M. an incision was made from the umbilicus to within an inch of the os pubis, through the integuments down to the linea alba, the viscera of the abdomen being kept out of the way by the hands of assistants. An opening into the peritoneal sac having been accomplished, a director was introduced and the section finished by the bistoury. The uterus was now divided without regard to the safety of the fœtus, its previous death having been ascertained; the right shoulder and arm presented. The strong uterine contractions preventing the feet from being readily seized in the limited space allowed by the deformity, between the umbilicus and os pubis, for the incision, it was extended to the left and for an inch above the former point. After this further enlargement of the cut to reach the feet with safety, it was found necessary to remove the presenting arm at the shoulder, and the abdomen was also pierced and a portion of its contents removed. A fœtus of an average size was then extracted, and the placenta being detached was at once removed, and the dressing of the wound commenced; very little hæmorrhage occurred, and no sensible evacuation into the peritoneal cavity. Five sutures were found necessary from the extent of the wound, and adhesive straps were employed to approximate the lips of it throughout its whole extent. The patient evinced an extraordinary degree of composure and fortitude throughout the whole operation, and expressed herself greatly relieved by it. The frequency of the pulse but little accelerated; no syncope or prostration. She was ordered to be kept as quiet as possible; cool drinks and no food for the present. Called at 3 P. M., the patient easy and comfortable, has slept some, complains of no pain, and is cheerful; pulse unaltered: a slight diet, and strict quiet enjoined. 9 o'clock, A. M., the 7th, met Dr. Shreve and proceeded to dress the wound; patient has had a comfortable night; pulse 112, skin moist and cool, no other evidence of inflammatory action, except a rather increasing desire for cool drinks; appetite good—wound looks well and likely to unite in part by first intention; partial discharge of lochia per vaginam, os uteri sufficiently open to allow a finger to pass. Continue regimen prescribed; evacuate urine twice a day with catheter, and administer mild enemata to move the bowels: spirits nitr. dulc., half a tea-spoonful every two hours. 7 o'clock, P. M., some change for the worse; considerable tumefaction of the abdomen, although no appreciable tenderness; partial hæmorrhage from the wound externally; pulse slightly accelerated but reduced by a small bleeding. By 10 P. M., the tumefaction so far increased as to threaten to tear the sutures; renewed adhesive straps of a greater length: some nausea and disposition to vomit. Suspend spirits nitr. dulc., and give some effervescing draughts: rendered more comfortable by the dressings.

8th, 7 o'clock, A. M., but partial evacuations from the bowels as yet procured by the frequently repeated enemata; patient in great distress; pulse in statu quo; surface cool, but swelling still increasing; no tenderness as yet upon pressure: refers her sufferings entirely to the state of her bowels. Suspend effervescing draughts and give every hour a tea-spoonful of mucilage of gum arabic, in which was suspended a small portion of carb. ammonia and camphor combined with magnesia. 4 P. M., no evident change except occasional vomiting of a greenish fluid, and a partial evacuation of fœcal matter per anum with great discharge of wind, from which much relief was obtained. Pains throughout have been of a paroxysmal character, with intervals of ease. To a bystander, uninformed of the fact that an operation had been performed, the symptoms would clearly have indicated a constriction of the intestine previous to the occurrence of active inflammation; pulse full, regular, and not greatly accelerated in frequency: continue previous treatment.

9th, 7 o'clock, A. M., patient still growing worse; swelling increasing; pulse unaltered; vomiting at intervals through the night, attended with great discharges of flatus by the mouth, and per anum, giving great relief; enemata still inefficient in producing proper alvine evacuations; an attempt to evacuate the flatus by the introduction of a long stomach tube into the rectum failed, owing to the deformity of the sacrum preventing its insertion. The case appearing desperate, no other

notice need here be taken of the further treatment. She lingered till 8, A. M., of the 11th, possessing her faculties unimpaired to the last.

Post-mortem Examination, three hours after death.—Leave having been granted for a limited examination, the following results were noted. External appearance: great bloating of the abdomen; viscera protruding between the sutures; no adhesion of the wound in any part of its extent. By puncturing the distended stomach, colon, and rectum, a great discharge of fetid gas ensued, the tumour subsided, and rendered the further examination more practicable. Internal changes: no perceptible traces of effusion into the abdomen; peritoneum slightly tinged with red on different parts of its surface; the blood-vessels of the intestines engorged throughout their whole extent; inflammation of a high grade and some gangrenous spots on the colon; rectum highly inflamed, but not gangrenous; small intestines in same condition; no stricture discovered, though the presence of the friends of the deceased, and the limited nature of the examination they permitted, prevented a minute research; bladder empty and in its normal condition; uterus occupying its natural situation, greatly tumefied; the parietes of body and fundus thickened to more than half an inch; outer coat hard and unyielding; inner coat softened by gangrene; no adhesion of its wound; right fallopian tube and ovary highly inflamed; left one nearly in its healthy condition. The deformity consisted in a projection of the sacrum reducing the antero-posterior diameter of the pelvis to one inch and three-fourths. These are the general facts presented by the examination, which was necessarily limited, under the circumstances of the case.

Case of extraordinary Constipation. By GEORGE W. DENIG.—Vandle Gooden, adult, has been of a costive habit for some years, passed generally no more than two or three evacuations per week. Is remarkable for the prominency of his abdomen, particularly on the left side. His parents inform us he has been irregular in his evacuations ever since his birth.

In July last, the number of evacuations were diminished to one every seven days, and that of an ordinary size. This condition continued from the middle of July until the 7th of November, three months and twenty-two days, without very materially deranging his health or appetite, according to his own account.

At the time last mentioned, he passed three stools of ordinary amount a day, for three successive days, which gave him but little relief from the pain and distension he had begun to complain of.

After the 7th of Nov. up to the time he came under my care, (being twenty-eight days,) he has had but one small evacuation. Still eats his meals regularly; has a tolerable appetite. He has never vomited, but if his head lies low during sleep, the food will be forced up into his mouth. Upon examination I find the parietes of the abdomen distended to their utmost, and of extraordinary dimensions; the prominency inclining very much to the left side, or region of the descending colon and rectum.

December 5th. An enema of soap and warm water with a little salt was administered at two o'clock, which brought away a considerable quantity of fœces. The enema was repeated at six o'clock, and passed off after dark with the same result.

December 7th. No perceptible diminution of size; not quite so much pain and uneasiness. Administered an enema of one quart of the same article, which was also followed by the same result as before.

On the next day an enema of one quart was injected through a large male catheter, introduced about six inches. This was passed away in the night, with a considerable quantity of fœces, in which were 50 or 60 cherry stones which he had swallowed about the middle of July. On the 8th the same course was pursued with beneficial results.

Being anxious of ascertaining to what cause his disease was to be attributed, I took a gum-elastic stomach tube, and attempted to introduce it up the intestine, but found it impossible to pass it more than six inches.

Finding all efforts fruitless, and the irritability of the intestine considerable, we abandoned our intention of introducing it any farther, under the impression that either a stricture or unnatural fold occupied the place of resistance. While the tube was introduced about six inches, an enema of half a gallon of tepid water

was administered, and the patient directed to take one tea-spoonful of Rochelle salts three times a day.

10th. Passed three large stools and feels easy.

12th. Six o'clock, p. m., administered an enema of five pints of tepid water through the tube passed up about six inches. At 10 o'clock was sent for and found the patient enormously distended with gas; abdomen as large as it had ever been, and breathing a good deal oppressed, and the patient unable of himself in any manner to expel the flatus. I passed the instrument up about the same distance as before, and immediately the gas escaped with force.

For four days the common syringe was used twice a day, during which time he passed several large stools. For ten days he has been allowed to eat nothing more than gruel and chocolate. He is now materially altered in appearance, and feels comparatively easy.

17th. Introduced the stomach tube as before and forced up one gallon and one pint of tepid water. A part of this must have passed the stricture or obstruction, as it cannot be possible that such a quantity could have been contained in the pelvis. In the evening of the day he passed half a gallon of the enema very much thickened with the contents of the bowels. At 9 o'clock I found the abdomen as much distended with gas as before, and the patient in great misery, and unable to pass it. The tube was again introduced and the patient immediately relieved. This gas was similar to the other, and had the smell of sulphurated hydrogen.

On the 18th he was directed to take a table-spoonful of the oleum ricini suspended in mucilage of gum-arabic, three times a day, as no effect followed the use of the salts which he had been taking for four or five days. On the evening of this day the patient had several large stools, the remains of the injections previously administered.

19th. Has passed three quarts of fœces during the night. Continues the oil, and is still more reduced in size; has a good deal of uneasiness in the bowels, caused by the medicine. By this time, as near as the patient and I can calculate, he has passed somewhat more than half a bushel of fœces beside water used for injections.

On the 20th the castor oil began to operate, and he had three large stools.

21st. Has passed almost four quarts of consistent fœces through the night.

22nd. Has passed since last evening a peck of fœces by measure, without the aid of an enema.

24th. Has evacuated another peck since yesterday morning.

25th. The medicine still continues to operate, but he does not any longer measure the evacuations. The abdomen is reduced to its ordinary dimensions.

28th. Patient can walk about and is left to his own management.

January 6th. The patient called to see me and says he has an evacuation every other day, with the use of the pills he is now taking occasionally.

I do not know of there being a case on record equal to this, either in duration or danger, and though it is remarkable that the patient did not die of some inflammatory action, the danger was considerably lessened by the length of time the disease had been in existence, the slow and gradual progress of the distension, and the consequent insensibility of the intestine which diminished materially, I have no doubt, the liability of the intestines to irritation and inflammation.

M'Connellsburg, Bedford Co., Penn., Jan. 14th, 1836.

Case of Local Pulsation. By ELISHA BARTLETT, M. D.—I was invited, a few days since, by Dr. Duesbury, of this town, to see a patient suffering with violent throbbing of the temporal arteries. The patient is a chlorotic girl. All that could be ascertained of her previous history, in regard to disease, was that she had been repeatedly bled for what her physicians had called *brain fever.* At these times, she says, the beating in the temples was present. On examining the temporal arteries, I found them pulsating with a very powerful expansive throb, like that of an aneurism. The strength of the arterial beats was not uniform. The vessel seemed to swell up under the touch, like an artery as large as the little finger, with its circumference indistinctly defined. It resembles, somewhat, the swelling out of the temporal muscle when the lower jaw is strongly pressed against the upper. Every pulsation was painful, and the action of coughing, although in-

stinctively suppressed by the patient, was accompanied by great aggravation of the pain in the temples. But the most curious circumstance in this case remains to be stated. *The pulsations in the temporal arteries were not synchronous with those of the heart.* The average number of pulsations at the wrist, repeatedly counted, was *one hundred and six*; the average number in the temporal artery was *eighty*. The pulse at the wrist was feeble and soft; the action of the carotids corresponded in force and frequency with that of the radials. By firmly compressing the temporal artery, low down and anterior to the ear, where its action was very much less violent, the powerful throbbing of the temples was arrested; and the artery flattened away like an aneurism emptied in the same manner. I say nothing of the general symptoms, as I mention the 'case to you chiefly as a striking and unequivocal instance of pulsation in an artery independent of the action of the heart.

[This is an interesting case, and manifestly one of anemia, in which condition pulsation of certain arteries often occurs, and frequently to such an extent as to have led to the belief of the existence of aneurism of those vessels. (See Art. *Anemia*, in the American Cyclopedia of Practical Medicine and Surgery.)—ED.]

—

Extract of a Letter from Dr. CHARLES GORDON, *of Lowell, now in Paris, to* Dr. ELISHA BARTLETT. Communicated by the latter.—"Louis is, I should say, 45 years old. He is tall, perhaps 6 feet, of slight figure, and exceedingly active. His head is large, and, considered phrenologically, sustains the science. His forehead is high, broad and full, but not prominent; the fulness continuing backwards to the crown. Thus we have his remarkably sagacious, discriminating, and reasoning mind, sustained by conscientiousness. He is deficient in imagination, fortunately for science. His eye is hazel, very bright and piercing: he is near-sighted, and wears spectacles." * * * * * *

"At the meeting of the faculty, at the opening of the School of Medicine, Broussais gave an introductory lecture. It was supposed by many that he would take this favourable occasion to sustain his doctrines in his violent and spirited manner; but the distinguished reformer did not this time compromise his own dignity, or disregard that of the occasion by any harsh or extravagant expressions in his own support or in reference to his opponents. He eulogized the character of the celebrated Dupuytren in a very handsome manner; but such is the devotion of the French to the memory of this great man, that it is not in the power of language to express their feelings. In the course of his remarks he made known all the details of the foundation of the chair of Pathological Anatomy. These details revealed the fact that Orfila, profiting by the generous intentions of Dupuytren, had been the direct agent of accomplishing one of the greatest works of the present time for the promotion of the science of medicine. It is well known that Dupuytren, in his last days, declared his intention of bequeathing to the faculty the sum of 200,000 francs, to found a chair of Pathological Anatomy. Orfila wished him to devote this sum to the formation of a *museum* of pathological anatomy. At first this proposition was rejected by Dupuytren, but afterwards accepted. He died, however, without having made the necessary alterations in his will. Orfila represented the circumstances to the Ministere Royale Conseil, and suggested that it would be highly honourable to them to execute the intentions of the illustrious surgeon by providing the sum necessary for the construction of the museum, which should take the name of *Musée Dupuytren*. They complied with his suggestions, and Mons. and Madame Beaumont furnished, also, the sum of 200,000 francs in aid of the work. This was in the middle of June last, and by the 20th July the funds were placed in the hands of Orfila. On the 3d of November the work was accomplished. The museum contains a beautiful display of morbid specimens. They are admirably arranged, not only to be seen but in a convenient manner for study." * * * *

"At present, a very interesting *concours* is going on for the Chair of Surgery, vacant by the death of Dupuytren. The *concourants* are Sanson, Blandin, Bérard, Jobert, Lépellétier and others less celebrated. By the promotion of Roux to Hôtel Dieu, and of Velpeau to La Charité, the vacancy is at La Pitié. Blandin or Sanson, it is supposed, will succeed."

—

A Case of Introsusception, in which an operation was successfully resorted to, by

John R. Wilson, M. D., communicated by Mr. W. W. Thompson, Student of Medicine.—The facts of the following case were recalled to my mind by the remarks of the Professor of Anatomy and Surgery, in his late lecture on the diseases of the intestines. The propriety of an operation in cases of introsusception, where other remedies had failed, was suggested by the professor, though he gave no directions concerning the mode, leaving that to the judgment and skill of the operator.

This operation, novel, I believe, in the annals of surgery, was performed by my friend and preceptor, John R. Wilson, M. D., then of Rutherford county, Tennessee, now of Mississippi, between the 25th and 30th of December, 1831, and with complete success. The following report of the case is given from memory, but is substantially correct. It is presumed that Dr. Wilson will, at some future day, favour the profession with a more circumstantial report, which cannot fail to attract considerable attention.

The subject of the operation was a negro man, aged about twenty years, the property of Mr. Charles Dement. The patient had laboured for seventeen days under bilious colic, and stercoraceous vomiting, and the other more alarming symptoms of this disease, had appeared. All the active purgatives were administered in vain, and, on the evening before the operation was resolved upon, as a dernier resort, some ounces of crude mercury were given. The constipation remaining, with the other formidable appearances, it was plain that nothing but the knife could save the patient.

The operation was performed in the following manner. An incision was made along the linea alba, commencing above the umbilicus and extending two or three inches below it, being in all about five inches in extent. The bowels being protruded through the wound, that portion involved in the stricture came into view. It was found to be in the *ileum*. The bowel was grasped above and below the point of obstruction, and after several efforts of considerable force, the adhesion gave way. The exertion necessary to break up the attachments, it was feared, might lacerate the intestine, but no such accident followed. The bowel strangulated was of a dark livid appearance, evidently approaching to gangrene, and of double its ordinary size. The vessels of the omentum were also deeply engorged with black blood, apparently stagnant. The parts seemed to be on the verge of mortification. After returning the intestines into the abdomen, having carefully excluded the atmosphere during the operation by a warm, moist cloth spread over the viscera, the wound was made secure by a few stitches with the needle, and adhesive strips. The patient was put to bed, and in a very short time voided the mercury which he took the evening before. His recovery was rapid and entire.

The success of this case, in which the operation was so long deferred, and at last performed under such unfavourable circumstances, warrants the propriety of resorting to it in the disease, and proves that relief may occasionally be afforded by this means, when all others have failed.— *Transylvania Journ. of Med.* Dec. 1835.

Ryan's Manual of Midwifery.—We are pleased to see an American edition of this valuable work. Dr. Ryan is well known to the profession in this country, and his writings are in high favour among us. The opinion expressed of his Manual of Midwifery by Dr. Dewees, (see this Journal, Vol. V. p. 466,) whose judgment on this subject will not be contested, is of the most flattering character. This work is, in fact, the most erudite one on obstetric science in our language, and we have no doubt that the publishers, Messrs. Smith and Harrington, of Burlington, will find their enterprise a profitable one.

Dr. John H. Stiel's *Annual Address before the Medical Society of the State of New York.*—We have read this address with much pleasure. It contains some important truths, and we shall take another opportunity, when we have more space at our disposal, to advert to them.

Professor Wood's *Address to the Medical Graduates of the University of Pennsylvania.*—The Medical Faculty have done wisely in publishing this address. It presents an interesting sketch of the history of the ancient and venerable institu-

tion in which Dr. Wood occupies a chair; written in a neat and perspicuous style, showing it to be the production of a scholar, and of a gentleman of taste and feeling. The entire absence of gasconade, and its not being composed in the "Fourth-of-July-oration-style," strongly distinguish it from the major part of the productions of an analogous character which are annually put forth in this country. It should be widely circulated.

Dr. T. Y. SIMONS' *Introductory Lecture.*—This is an eloquent lecture, containing a just view of the exalted rank of our Divine Art, and some judicious observations on medical education, written in a terse and vigorous style. Like the address last noticed, it is also honourably distinguished from similar productions with which our table is crowded, by the negative characters, indicated in the preceding paragraph.

WALLACE's *Essay on the Structure of the Eye, with reference to Natural Theology.*—This is a neat little volume of fifty-two pages, illustrated with twenty-one well-executed wood cuts. We recommend it to those who are curious on the subject.

Dunglison's Physiology.—A second edition of this valuable work, with additions and improvements, has been issued by Messrs. Carey, Lea & Blanchard.

University of Pennsylvania.—The number of medical students in attendance on the Lectures, during the session 1835-6, was 398.

Transylvania University.—The number of the Medical Class in this school, during the session 1835-6, was 260.

Cincinnati College.—Sixty-six students attended the Medical Lectures in this institution during the session 1835-6.

Medical Institution of Geneva College.—During the session of 1835-6, 68 students were in attendance on the Lectures. The number of graduates last year was 6.

ERRATA.

No. XXXIV.—Page 541, line 58, for "splenic nervous system," read "splenic venous system."

542, „ 16, for "of an inch in diameter," read "of the eighth of an inch in diameter."

THE

AMERICAN JOURNAL

OF THE

MEDICAL SCIENCES.

24* †

COLLABORATORS.

Elisha Bartlett, M. D. *Professor of Pathological Anatomy in the Berkshire Medical Institution.*

Jacob Bigelow, M. D. *Professor of Materia Medica in Harvard University, Boston.*

Henry Bronson, M. D. *of Albany, New York.*

Edward H. Barton, M. D. *Professor of the Theory and Practice of Medicine and Clinical Practice in the Medical College of Louisiana.*

N. Chapman, M. D. *Professor of the Institutes and Practice of Physic and Clinical Practice in the University of Pennsylvania.*

B. H. Coates, M. D. *one of the Physicians to the Pennsylvania Hospital.*

Reynell Coates, M. D. *of Philadelphia.*

John Redman Coxe, M. D. *Late Professor of Materia Medica and Pharmacy in the University of Pennsylvania.*

D. Francis Condie, M. D. *of Philadelphia.*

William P. Dewees, M.D. *Late Professor of Midwifery in the University of Pennsylvania.*

S. Henry Dickson, M. D. *Professor of the Institutes and Practice of Medicine in the Medical College of the State of South Carolina.*

Robley Dunglison, M. D. *Professor of Materia Medica, Therapeutics, Hygiene, and Medical Jurisprudence, in the University of Maryland.*

Gouverneur Emerson, M.D. *of Philadelphia.*

Paul F. Eve, M. D. *Professor of Surgery in the Georgia Medical College.*

John W. Francis, M. D. *Late Professor of Obstetrics and Forensic Medicine in Rutgers Medical College, New York.*

E. Geddings, M. D. *Professor of Anatomy and Physiology in the University of Maryland.*

W. W. Gerhard, M. D. *one of the Physicians to the Philadelphia Alms-house Infirmary.*

William Gibson, M. D. *Professor of Surgery in the University of Pennsylvania.*

R. E. Griffith, M. D. *Professor of Materia Medica and Pharmacy in the Philadelphia College of Pharmacy.*

E. Hale, M. D. *of Boston.*

George Hayward, M. D. *Professor of the Principles of Surgery and Clinical Surgery in Harvard University, Boston.*

William E. Horner, M. D. *Professor of Anatomy in the University of Pennsylvania.*

Ansel W. Ives, M. D. *of New York.*

Samuel Jackson, M. D. *Professor of the Institutes of Medicine in the University of Pennsylvania.*

Samuel Jackson, M. D. *of Northumberland, Pennsylvania.*

John George Morgan, M. D. *Professor of the Principles and Practice of Surgery in Geneva College, New York.*

Valentine Mott, M. D. *Professor of Pathological and Operative Surgery in the College of Physicians and Surgeons, New York.*

James Moultrie, Jr. M. D. *Professor of Physiology in the Medical College of the state of South Carolina.*

Reuben D. Mussey, M. D. *Professor of Anatomy and Surgery in Dartmouth College, New Hampshire.*

T. D. Mutter, M. D. *of Philadelphia.*

R. M. Patterson, M. D. *Late Professor of Natural Philosophy in the University of Virginia.*

Philip Syng Physick, M. D. *Emeritus Professor of Anatomy and Surgery in the University of Pennsylvania.*

Thomas Sewall, M. D. *Professor of Anatomy and Physiology in the Columbian College, District of Columbia.*

Ashbel Smith, M. D. *of Salisbury, North Carolina.*

Nathan R. Smith, *Professor of Surgery in the University of Maryland.*

Thomas Stewardson, M. D. *of Philadelphia.*

A. F. Vaché, M. D. *of New York.*

John Ware, M. D. *Assistant Professor of the Theory and Practice of Physic in Harvard University, Boston.*

John C. Warren, M. D. *Professor of Anatomy and Surgery in Harvard University, Boston.*

Thomas H. Wright, M. D. *Late Physician to the Baltimore Alms-house Infirmary.*

EDITOR---Isaac Hays, M. D. *one of the Surgeons to Wills' Hospital, &c.*

Communications have been received from Professor CHAPMAN, Drs. LEE, HEUSTIS, WARREN, ANNAN, KEMP, DENNY, ATLEE, and R. COATES.

By a new arrangement of the types we have increased our review department, without curtailing the other departments or subjecting our subscribers to increased postage.

Several articles of American intelligence, prepared for this number, have been excluded from want of space.

The following works have been received:—

New Views of the process of Defecation, and their Application to the Pathology and Treatment of Diseases of the Stomach, Bowels, and other Organs; together with an Analytical Correction of Sir Charles Bell's Views respecting the Nerves of the Face. By JAMES O'BEIRNE, M. D., Surgeon Extraordinary to the King, &c. Dublin, 1833. (From the author.)

A Report made to the Legislature of Kentucky, on the Medical Department of Transylvania University, February 15th, 1836. By CHARLES CALDWELL. Lexington, 1836. (From Professor Short.)

Ueber Paralyse der Inspirations-Muskeln. Von Dr. LOUIS STROMEYER. Hanover, 1836. (From Dr. von dem Busch of Bremen.)

Transactions of the Medical and Physical Society of Calcutta, Vol. VII. Calcutta, 1835. (From the Society.)

A Supplementary Catalogue of Ohio Plants. Catalogue and descriptions read, and specimens exhibited, before the Western Academy of Natural Sciences, March 16, 1836. By JOHN L. RIDDELL, M. D., Adjunct Professor of Chemistry, and Lecturer on Botany, in the Cincinnati Medical College. Cincinnati, 1836. (From the author.)

Meteorological Observations and Essays, furnished for the Appendix to the Report of the Regents of the University of the State of New York for 1836. By B. F. JOSLIN. Albany, 1836. (From the author.)

Report made to the Legislature of New Hampshire, on the subject of the Insane, June Session, 1836. Concord, 1836. (From Dr. Bell.)

General Therapeutics, or Principles of Medical Practice; with Tables of the chief remedial agents, and their preparations; and of the different poisons and their antidotes. By ROBLEY DUNGLISON, M. D., Professor of Therapeutics, Materia Medica, Hygiene and Medical Jurisprudence, in the University of Maryland, &c. &c. Philadelphia, 1836. (From the author.)

First Lines of Physiology; designed for the use of Students of Medicine. By DANIEL OLIVER, M. D., Professor of the Theory and Practice of Physic, &c. in Dartmouth College. Boston, 1835. (From the author.)

Archives Genérales de Médicine, May, June, July, August, September, October, November, and December, 1835. (In exchange.)

Gazette Médicale de Paris, December, 1835, January, February, and March, 1836. (In exchange.)

Bulletin Général de Thérapeutique Medicale et Chirurgicale, November, December, 1835, January, February, and March, 1836.   (In exchange.)

Journal de Médecine et de Chirurgie Pratiques, December, 1835, and January, 1836.   (In exchange.)

La Lancette Française, November and December, 1835.   (In exchange.)

Journal des Connaissances Medico-Chirurgicales, December, 1835, January, February, and March, 1836.   (In exchange.)

Journal Hebdomadaire des Progres des Sciences Médicales, December, 1835, January, February, and March, 1836.   (In exchange.)

Journal de Pharmacie, December, 1835, January, February, and March, 1836.   (In exchange.)

Revúe Médicale, January and February, 1836.   (In exchange.)

Mémorial Encyclopédique et Progressiv, January, 1836.   (In exchange.)

Journal des Connaissances Médicales, October, November and December, 1835, and January, 1836.   (In exchange.)

The Edinburgh Medical and Surgical Journal, October, 1835, January and April, 1836.   (In exchange.)

The Medico-Chirurgical Review, October, 1835, January and April, 1836. (In exchange.)

The London Medical and Surgical Journal, edited by Dr. RYAN, August, September, October, November, and December, 1835, January, February, March, April, and July, 1836.   (In exchange.)

London Medical Gazette, March, April, and May, 1836.   (In exchange.)

The British and Foreign Medical Review, January and April, 1836.   (In exchange.)

The Transylvania Journal of Medicine and the Associate Sciences.   Vol. IX. No. 1.   (In exchange.)

The United States Medical and Surgical Journal, April and May, 1836. (In exchange.)

The Western Journal of the Medical and Physical Sciences, April, 1836. (In exchange.)

The Southern Medical and Surgical Journal, June, 1836.   (In exchange.)

The Jamaica Physical Journal, March and April, 1836.   (In exchange.)

Authors of new medical books, desirous of having them reviewed or noticed in this Journal at the earliest opportunity, are invited to transmit to the *Editor* a copy as soon after publication as convenient, when they will receive prompt attention.   Under ordinary circumstances, very considerable delay is caused by the circuitous routes through which they are received.

Papers intended for publication, should be sent, *free of expense*, as early after the appearance of the Journal as possible, in order to be in time for the ensuing number.   Such communications should be addressed to "CAREY, LEA & BLANCHARD, Philadelphia, for the *Editor of the American Journal of the Medical Sciences*."

All letters on the *business* of the Journal to be Addressed exclusively to the publishers.

CONTENTS.

ORIGINAL COMMUNICATIONS.

ESSAYS.

MEDICAL EDUCATION AND INSTITUTIONS.

REVIEWS.

QUARTERLY PERISCOPE.

FOREIGN INTELLIGENCE.

ANATOMY.

PHYSIOLOGY.

PATHOLOGY.

MATERIA MEDICA.

THERAPEUTICS.

OPHTHALMOLOGY.

SURGERY.

MIDWIFERY.

AMERICAN INTELLIGENCE.

ERRATA.

Page 289, lines 10 and 11 from bottom, for "by changing the tissue when the same solutions were retained," read "by retaining the tissue when the solutions were changed."

Art. I. *Experiments upon the Blood, together with some new facts in regard to Animal and Vegetable Structures, illustrative of many of the most important phenomena of Organic Life,—among them Respiration, Animal Heat, Venous Circulation, Secretion, and Nutrition.* By Robert E. Rogers, M. D., of Philadelphia.

Since the days of the celebrated Harvey, most of the questions connected with the functions of respiration, animal heat, venous circulation, nutrition, and secretion have earnestly engaged the attention of physiologists. At an early period in the history of these inquiries, they were embarrassed by many difficulties, arising principally from the little that had been experimentally determined respecting the true nature of the fluids and solids concerned in these functions. Even up to the present time the solution of most of the fundamental questions in physiology has been greatly impeded by the very general neglect of chemical methods of research. The close and legitimate connexion which prevails between many departments of chemistry and physiology, would seem naturally to suggest that the latter might derive important benefit from admitting into its discussions the accurate and abundant data furnished by the other. Inattention to this most desirable application of the powers of chemical research to the elucidation of the operations of life, has too often deprived the physiologist of auxiliaries in the interrogation of nature of more value than all the other means within the reach of the medical philosopher. Modern medical literature is crowded with ingenious speculations respecting the various changes going on throughout the system; but, how rarely has the experimental chemist entered the field of inquiry, with the view to lead us by the path of cautious analysis and fair in-

duction to a knowledge of what these changes are.   Speculation and conjecture are now giving way, however, to the growing desire for the developement of facts, while the daily advances making in the modes of experimenting and an increase of skill in observation, are doing much to alter the whole aspect of the science.   Nothing has so much delayed this important reform in the method of investigating medical problems as the distinction continually drawn between the phenomena of living organized beings and ordinary matter.   A prevailing, though I believe mistaken, persuasion, that the laws which regulate the several motions and changes in organized structures have nothing in common with those of ordinary chemical action, but are exclusively obedient to a class of forces distinct in their nature from any which preside over the inorganic world, has invested the whole subject with an air of mystery and obscurity calculated much to retard the progress of medicine.   But, instead of placing the actions of the living system under the dominion of certain occult powers, and believing, in consequence, that the seat and causes of these actions are altogether out of the reach of examination by experimental means, ought we not rather to consider them, so far as they are within the reach of human investigation, as differing from the phenomena of inorganic matter only in the peculiar complexity of the structures in which they originate, and the multiplicity of the agencies to which this complexity must give rise.   It is true that the chemist, in his researches into life, is not permitted to reach the sanctuary of the presiding genius, yet this is no reason why he should not be allowed to investigate the structure of her habitation.   This, we believe, is the legitimate object of chemistry, as applied to physiology.

The rapid progress which analytical chemistry has recently made in the dominion of organic nature, and the light which its discoveries have cast on the phenomena of disease, have made the contributions of Priestly, Berthollet, Berzelius, Davy, Edwards, Brande, and many others, of inestimable value to modern medicine.

The importance of the several inquiries above alluded to, is itself apology enough for any new attempt at exploring this extensive field.

Of Respiration.—Physiologists, long aware of the large amount of blood circulating through the lungs, and familiar with the minute anatomical character of these organs, were led at an early period to attribute to them important functions.   New and increased attention was drawn to the respiratory system by the discovery of Harvey, that during each entire circulation the whole mass of the blood passes through the lungs, that it there undergoes the curious change from the venous to the arterial condition, and that for this result to take place

the presence of atmospheric air is indispensably necessary. But the real source of this change and the mode in which it is effected were questions at that time undetermined, and gave rise to numerous conflicting doctrines, founded rather upon hypotheses than derived from ascertained facts. It was not until Black had made known the existence of carbonic acid in the expired air, and the fact that this gas consists of oxygen and carbon, that any thing like a definite or satisfactory interpretation of the phenomena of respiration presented itself. The scientific contributions of this distinguished philosopher gave a new impulse to the subject, and have furnished the foundation upon which the chemical theories, now maintained, have been erected. The following are the two leading theories of the function of respiration, which prevail at the present day.

The first, originally stated by Black, and adopted by Priestley, Lavoisier and Crawford, supposes that venous blood contains a large excess of free carbon, and that, in its passage through the lungs, the carbon coming in contact with the oxygen of the inhaled atmosphere, unites with it and forms carbonic acid, which, by this theory, is considered to be exhaled as soon as generated.

The second theory, that of Lagrange, Edwards and Hassenfratz, was adopted chiefly to explain an apparent difficulty in the above hypothesis of Black, namely, that the excessive amount of heat locally generated in the lungs by the rapid chemical union of the carbon and oxygen, would be sufficient to disorganize their structure. It supposes that the oxygen does not combine with the carbon in the lungs, but that it enters the arterial circulation, there *gradually* forms the union, and is returned along the veins to the lungs in the state of free carbonic acid.

A third hypothesis, advanced by Mr. Ellis, though not generally referred to, differs fundamentally from both the preceding. According to his view, no free carbon whatever exists in the blood; but he supposes it to be evolved from this fluid by a species of secretory process, by which it is made to enter the air cells in a free state, to combine there with oxygen, and to be expired as carbonic acid. I shall again advert to this theory, when I present my own view.

By the theory of Black, carbon is presumed to exist in the free state in venous blood, and to impart to this fluid its dark modena tint. This idea is such as could only have originated during the infancy of chemical science, and is certainly inconsistent with the facts and principles which more recent investigations have disclosed. If carbon exists, as is supposed, in a free state in venous blood, I would ask, under what form is it conceived to be present? To imagine it in the state of a vapour or of a liquid, would be to adopt an entirely

gratuitous conjecture, because chemists are yet unacquainted with it in either of these' conditions.   Besides, why make blackness an essential attribute of carbon, when the diamond, a purer form than charcoal, ought, if any thing, to have a preference as the type of this substance. The assumed inference, therefore, that the ordinary black colour of carbon has any agency in producing the colour of venous blood, ought hardly to be admitted into philosophical reasonings on this subject.   The existence of carbon in the free state in the blood, would, from the known insolubility of the substance, lead us to suppose it capable of separation by ordinary chemical means.   It may be true, as some suppose, that, when venous and arterial blood are incinerated, a large proportion of carbon is derived from the former; but this by no means proves that the extra portion of carbon of the venous blood was in an uncombined state.   On the contrary, it appears more natural to conceive that, as a constituent of most of the proximate materials of the blood, any difference in the proportion of these in the two kinds of that fluid must occasion the difference in the quantity of carbon in question.

   The second view of respiration which has been given, which considers that the oxygen is taken up by the arterial blood, and, while in the circulation meets with the carbon, there forming the carbonic acid, leaves unaccounted for the difference in tint between the venous and arterial fluid.   Dr. Stevens, in his treatise on the blood, has endeavoured to furnish an explanation of this phenomenon, and has presented some new views of arterialization.   Having found that certain salts possess the power of reddening venous blood, and that alkalies and certain acids darken arterial blood, he supposes that the oxygen, entering the lungs, is conducted by the arteries to their capillary extremities, that it there meets with the carbon, and forms with it carbonic acid, which, returning along the veins with the venous blood, imparts to it the modena tint.   Carbonic acid, not carbon, according to this view, is the immediate cause of the dark colour; and the saline matters of the serum, and not oxygen, are conceived to produce the florid arterial hue.   Dr. Stevens imagines that the carbonic acid in the venous blood counteracts the reddening influence of the salts there, and he denies that the oxygen possesses any other action than that of removing, by what he terms a "latent attraction," this impurity, the carbonic acid, thus leaving the serum free to exert that influence which he attributes exclusively to saline substances.   We perceive, therefore, that the whole question of colour, according to the advocates of this view, rests upon the supposed existence in venous blood of a large excess of free carbonic acid, the presence of which has been frequently maintained, and as often denied.

Blood, immediately after it is drawn, possesses a feeble alkaline re-action, indicated in its action upon litmus reddened by an acid, though turmeric paper seems not sufficiently sensible to show it. After it has reposed out of the circulation twenty-four or thirty-six hours, it is then much more decidedly alkaline, manifesting its action upon the turmeric paper very plainly. These facts are regarded by Dr. Stevens and others as favouring strongly the idea that venous blood contains a large portion of free carbonic acid. That the original alkalinity shown by newly drawn blood proceeds from alkaline carbonates, is, I admit, clearly in consonance with reason and experiment. But that the increase of alkalinity, during repose, arises from an escape of the free carbonic acid permitting the salts to exert their alkaline effects uncounteracted, is a doctrine I cannot accede to. Experiment leads me to the belief that all the alkalinity beyond that originally found when the blood is fresh, is in consequence of the formation of a portion of ammonia. In all instances where I have witnessed an increase of *alkaline* action, I have detected the most unequivocal indications of *ammonia.* The following experiment may serve to establish this conclusion. Two bottles were filled with venous blood caught directly from the vein, and one was forthwith tightly corked, the other left unstopped to admit the atmosphere. After standing six hours, a period supposed to be sufficiently long to allow any free carbonic acid, supposing it to have been present, to escape from the open specimen, they were carefully tested, and not the slightest difference in their degree of alkalinity was perceptible. Tested, thirty hours after, both portions showed a considerable addition to their alkalinity, exceeding the amount indicated by two other similarly treated portions of blood examined after eighteen hours repose.

A glass rod, moistened with muriatic acid, being held over some of the blood first employed, white fumes were copiously formed, indicating the existence of ammonia. In order to be fully persuaded
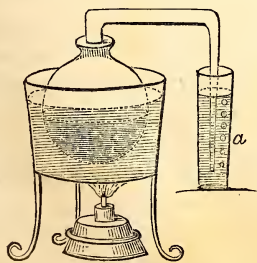
Fig. 1.

of the presence of this substance, some of the serum was placed in the globular vessel of the apparatus represented in *Fig.* 1, and a very gentle heat applied, with a view to expel any volatile matter. The gaseous matter evolved, was made to traverse a solution (*a*) of litmus delicately reddened by acetic acid. The bubbles, in their passage through the liquid, soon developed its blue tinge. Recently drawn blood was tried in a similar manner, but no analogous effect resulted.

24*

Conclusive evidence is thus furnished of the presence of ammonia, and of its elaboration from the blood by decomposition. It is to this process, then, and not to the extrication of any uncombined carbonic acid, the existence of which I think cannot be demonstrated, that we are to attribute the extra amount of alkalinity in blood, after standing. Dr. Stevens, in maintaining a favourite hypothesis, has overlooked, I apprehend, this all-important chemical fact.

Another opinion advanced by Dr. Stevens, is, that oxygen possesses no specific reddening agency farther than that which arises from its fancied power of abstracting carbonic acid from the blood. The following is the purport of the evidence upon which he founds his opinions. He considers that if a portion of a fresh red clot be immersed in distilled water, the saline matters will be rapidly removed by the water, and the clot will become perfectly black; also, that if it be then placed in pure oxygen, it will not return in the least to its former hue. To these statements, I have, at present, one important objection to make: it is, that, by immersing a clot in water, we do not, by any means, remove all the saline matter from the colouring portions and fibrine. This will be seen by adverting to the following experiments. A clot of blood was subjected to a constant stream of water from a hydrant for two hours; after which the washings were examined for saline matter, when they gave decided indications of its presence. The testing was repeated after the clot had been exposed to the current for four, six, eight, and twelve hours, and always with the same results.

The difficulty of separating entirely the saline from the other portions of the blood, induced me to ascertain how far the washing might be pursued without wholly removing all traces of the former. Accordingly, the following experiment was made. A clot was exposed to the stream from a hydrant for thirty-six hours, when the fibrine was detached completely from the colouring matter, and a small amount of the latter was dispersed through the water. This water was decanted to the amount of a pint, and evaporated to dryness; the residue was again washed, leaving the albumen undissolved. The water from this was again evaporated, and its residuum exposed to ignition in a platinum crucible, by which all the volatile animal matters were burnt off. The mass which remained in the crucible was then tested for salts, and gave with nitrate of silver clear proof of the presence of muriatic acid, showing the existence of some *muriate.*

From this and from numerous similar results, I am led to the conclusion, that the presence of colouring matter in the blood is always accompanied by that of the saline substances, while, from some expe-

riments which I have undertaken upon the subject, and the many fruitless attempts I have made to insulate the colouring principle, I am almost induced to believe that there is not in the blood any independent proximate principle, whose *exclusive* province is to give colour, but that the presence of some salt is essential to this result. Must we not, therefore, regard the methods laid down by most authors for the separation and insulation of colouring matter, as erroneous? That of Berzelius, which consists in repeatedly soaking slices of the clot in water, and drying it between bibulous paper, is evidently insufficient to procure the colouring matter alone, while that of Engelhart destroys its character entirely as colouring matter.

The statements of Macaire and Marcet that the *colour* of the *colouring* matter of arterial and venous blood differs, and that the former is not so dark as the latter, as it proceeds upon the assumption that they succeeded in insulating the colouring matter, is obviously liable to objection. I cannot help believing that the difference which they have noticed, is caused, in part, if not entirely, by a difference in the relative amount of saline matter present in arterial or venous blood, the effect of which has not been sufficiently recognised. In some experiments upon venous and arterial blood, made with the view of determining the relative amount of saline matter present in the coloured washings obtained from the clots of each, I found that the icinerated residuum procured from the arterial clot was always richer in this ingredient than the other.

Experiments were undertaken by Sir Humphrey Davy, Vogel, Sir E. Home, Brande, and Scudamore upon blood which was introduced into a vacuum before it had coagulated. It evolved a gas which they conceived to be carbonic acid, but which Dr. Clanny supposes to be nitrogen. In some similar experiments, however, made by Dr. J. Davy, Dr. Williams, Dr. Duncan, Dr. Christison, and Tiedemann and Gmelin, the same results were not attained. We are not informed which kind of blood was employed by these experimentalists. Some of those last mentioned, however, still conceive that carbonic acid exists in venous blood, though it is not extricated during coagulation. My own experiments, conducted with all possible precaution, have always failed in detecting this gas in venous blood, either during coagulation or subsequently; and I find that in this fact I am supported by the testimony of Berzelius, Muller, Mitscherlich, Gmelin and Tiedemann, who maintain that venous blood not only does not extricate carbonic acid while in a vacuum, but that it will absorb this gas to a very considerable amount, not yielding it again even to the air pump.

Fig. 2.

For the purpose of discovering if any gas is given off from the blood, I introduced the pipe of a glass syringe into the jugular of a sheep, shutting out the access of the atmosphere by means of a stop-cock, as soon as it was filled. I was thus enabled to pass a portion of blood, without its being exposed to the air, into a receiver over mercury. In this condition, the apparatus (*Fig.* 2) remained for three weeks, during which time not the least depression of the mercury occurred, showing most plainly that no gas whatever had been evolved. This was frequently repeated, and the experiment was extended to blood drawn from the human arm, excluded in a similar manner from the air, and invariably with the same results.

Not wholly satisfied with this negative evidence, I have endeavoured to test the presence of the suspected gas by the action of heat. With this view a little apparatus shown in *Fig.* 3, was employed. A
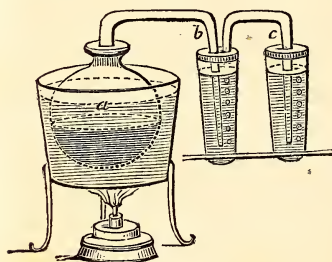
Fig. 3.

portion of venous blood was allowed to flow immediately from the vein into the bulb (*a*) which communicates by a tube with the vessels (*b*) and (*c*); (*b*) containing lime water, and (*c*) containing a solution of litmus. A heat of 212° was applied by means of a water bath to the bulb, and the effect of the expelled air or gas upon the liquids was looked for: not the least change upon either of them was produced. The same occurred with blood tried after different periods of repose, and similar experiments made with serum alone, and with crassamentum alone, and also with arterial blood and its portions, always gave the same results, provided those periods were not so long as to have allowed of *animal decomposition.* This experiment was extended to the fluid taken from a patient labouring under ascites, and which as nearly as could be ascertained, closely resembled ordinary serum; and in this instance, as before, the evidence was distinctly adverse to the existence of *uncombined* carbonic acid. In every one of these cases, however, when the water bath was replaced by a sand heat of 260°, carbonic acid was strongly indicated by both the test liquids. But, whenever this was so, there was every proof of decomposition having begun. The generation of ammonia, together with the extrication of muriatic

acid, ascertained by attaching a third test tube, containing a solution of the nitrate of silver, sufficed to render this certain.

Such, then, thus far, is the unsettled posture of our subject; to all appearance, scarcely more approximated to a satisfactory explanation of the important function here discussed, than in the time of Black.

On the action of Animal and Vegetable Tissues.—Before proceeding with the subject of respiration, I propose, under the present head, to state some fundamental facts which belong to a path of research but recently entered, and hitherto little trodden, furnishing a solution to many of the most important mysteries of physiology, and shedding light where previously all was obscurity and conjecture.

The first steps in investigating the action of tissues were made by H. M. Dutrochet, to whom is due the credit of having originally called the attention of the scientific world to a new and curious class of phenomena, under the appellation of endosmosis of liquids.

Dr. J. K. Mitchell, pursuing with great ingenuity and success a somewhat similar train of research, has much enlarged the limits of the subject, by extending it to gases; and professor Graham, of Glasgow, under the title of the diffusion of gases, has slightly adverted to the latter branch of inquiry, confining his attention more exclusively, however, to the laws which regulate the diffusion of aeriform fluids through capillary orifices.

In reviewing the labours of these experimenters, I have occasionally arrived at conclusions not in accordance with theirs, while, in many instances, I have the satisfaction of finding that our results entirely agree.

The chief and most essential point of difference between the results of the gentlemen mentioned and my own, is in reference to the view which is taken by them, that any liquid or gas invariably follows one direction, in relation to any other particular liquid or gas, without regard to the nature of the interposed structure, which my own experiments convince me does control, not only what particular gas or liquid in each case will be transmitted, but influences likewise the ratio in which they traverse the tissue. These authors would seem to conceive that the interposed substance is passive during the phenomena. It has appeared to me a point of high interest, however, to ascertain whether there does not exist an important influence due to the character of the separating structure.

My first object of attention has been to find whether or not there is a disparity in the rate of passage of different gases through different structures. For this purpose four short tubes (*Fig.* 4,) were chosen, equal in length and diameter. A portion of fresh cuticle recently separated from
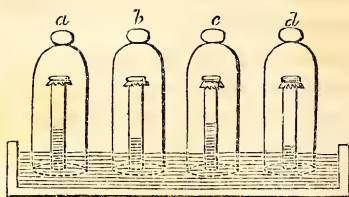
Fig. 4.

the *cutis vera* was tied across the end of the first (*a.*) Over the second (*b*) was fastened a portion of peritoneum; over (*c*) was a piece of mucous membrane; and over (*d*) a very thin section of fresh liver. These tubes being thus prepared and arranged over a mercurial trough, an equal measure of carbonic acid was passed up into each; a glass vessel was inverted over each of the tubes and filled with oxygen six times in volume of the carbonic acid in each tube. The two opposite sides of the organic structures were thus in contact with different gaseous atmospheres. A rise of the mercury in each of the tubes was soon perceived, and the rate of movement was seen to be distinctly different in each. At the end of thirty minutes the experiment was suspended, being deemed satisfactory; and the mercury in the several tubes stood nearly as represented in the figure. We here perceive that from the tube (*c*) where the mucous membrane was used, was the largest escape of the contained carbonic acid: a less proportion passed through the cuticle, (*a*) a less share still through the peritoneum (*b*), and least of all through the section of liver (*d*). I should state that, while the mercury was rising in the tubes, they were depressed to maintain the same level both inside and out in order to avoid any interference in the rate of passage from pressure. The tissues employed were as recent as could be procured. These inquiries were repeated and extended to other membranes with similar results, which I do not think it necessary to describe, as the cases given above are sufficient to establish the general proposition. As a deduction from the preceding determination, it seemed highly probable that by the use of certain tissues we might effect a separation of a particular gas from a mixture of two or more, so that by varying the tissue we might eliminate any given gas at will, performing a species of approximate analysis. To test the truth of such an inference, two tubes (*Fig.* 5) were taken, and being bent into a rectangular elbow, one
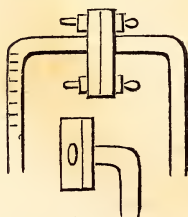
Fig. 5.

extremity of each was closed by a plate of metal perforated by a small round hole, corresponding to the calibre of the tube. A membrane being placed between the plates, they were then tightly clamped together. Thus arranged, I introduced into the leg of one of the tubes, a measure of nitrous oxide, a measure of carbonic acid, a measure of oxygen, and a measure of hydrogen;

and four measures of nitrogen were made to enter the other. The tissue employed in the first instance, was mucous membrane. In fifteen minutes, the mercury stood elevated in the first tube and depressed in the second; and the experiment being stopped, the contents of the latter were examined. It was found that nearly the whole augmentation of volume in this tube was due to carbonic acid. Cellular tissue was now substituted in place of the mucous membrane; and after a longer time than in the previous case, when a similar change had arisen in the volume of gas in the two tubes, the contents of that tube which previously held the nitrogen were inspected, and were found to consist of some carbonic acid, a still greater proportion of oxygen, and all the nitrogen previously present. These experiments were extended to vegetable tissues, the gases being frequently varied, and always the general results were analogous to those above in showing a diversity of action, according to the particular tissue and gases employed.

Another important branch of the inquiry, relates to the existence of a similar property in these organic structures to act on liquids. The extension of these laws of action to liquids is of the utmost importance to physiology; for nearly all the principal functions of animal and vegetable life seem intimately connected with the several specific relationships subsisting between their fluids and solids.

A bottle, filled with carbonic acid, was closed by a piece of mucous

Fig. 6.

membrane, and the mouth inverted in lime-water. The marginal figure (*Fig.* 6) represents an appearance which occurred in this experiment, caused by the precipitation of the lime, as carbonate from the under surface of the membrane in a thousand minute and beautiful striæ and curls, shooting downwards, sometimes with considerable velocity, and spreading through the liquid. In this instance the membrane was slightly indented; and after ten hours the liquid occupied one-fourth of the interior of the bottle. The inner surface of the membrane was discovered to be coated with carbonate of lime, the liquid within being pure water.

Fig. 7.

A portion of the same membrane was now tied over a glass open at both ends, (*Fig.* 7;) and into the hollow formed by partially exhausting the vessel, some lime water was poured, and was found to pass through the membrane unchanged.

Fig. 8.

A bottle was filled with lime water, and a piece of peritoneum was tied over the mouth, which was then inverted into a weak solution of oxalic acid. (See *Fig.* 8.) In a few minutes white clouds were seen to form and rise within the bottle, showing that the oxalic acid was passing through into the lime water, and that the current established was only in one direction. We thus have evidence of the existence of an agency controlling the transmission of certain fluids in preference to others.

To show that the agency in question is not attributable to ordinary capillary action, and for the sake of corroborating the previous experiment, an arrangement was made consisting of six tubes (*Fig.* 9) of equal diameter, adjusted as in the accompanying figures. The tube (*a*) was drawn at
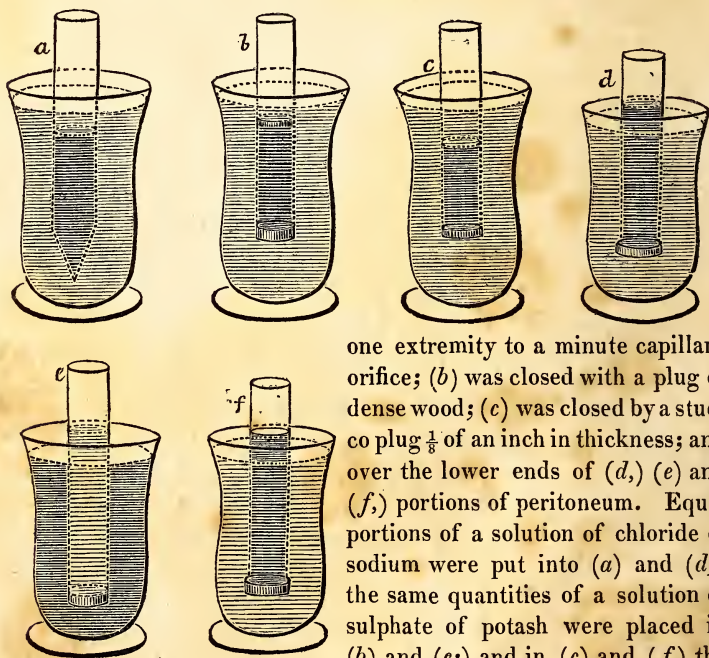
Fig. 9.

one extremity to a minute capillary orifice; (*b*) was closed with a plug of dense wood; (*c*) was closed by a stucco plug $\frac{1}{8}$ of an inch in thickness; and over the lower ends of (*d*,) (*e*) and (*f*,) portions of peritoneum. Equal portions of a solution of chloride of sodium were put into (*a*) and (*d*;) the same quantities of a solution of sulphate of potash were placed in (*b*) and (*e*;) and in (*c*) and (*f*) the same portions of sulphate of copper. The glasses into which these six tubes were immersed, were filled up to the same height with pure water, so that the surface of the li-

quids inside and outside of each tube, coincided. After the lapse of six hours, the liquids in the three tubes (*a*), (*b*) and (*c*), with the several kinds of capillary termination, had all sunk through a space varying between a fourth and a third of an inch. At the same time, the liquids in the other three tubes stood raised above their former level by about an equal amount.
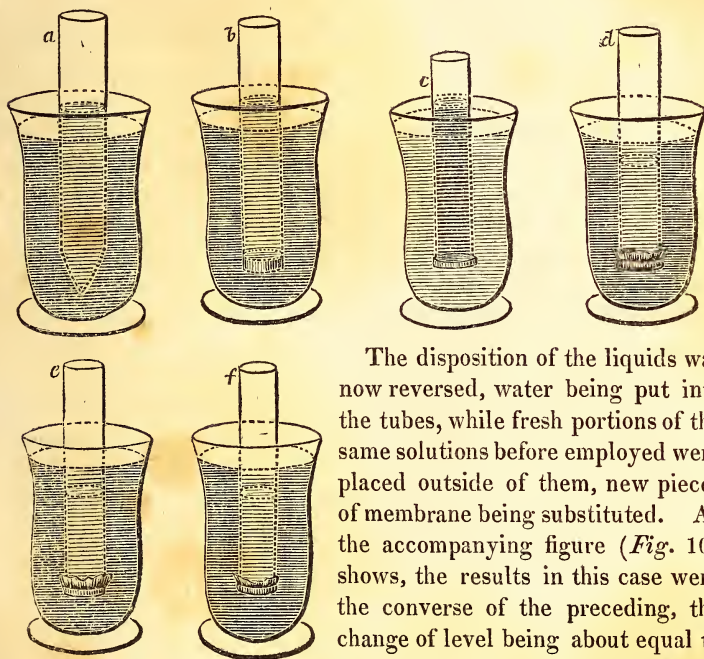
Fig. 10.

The disposition of the liquids was now reversed, water being put into the tubes, while fresh portions of the same solutions before employed were placed outside of them, new pieces of membrane being substituted. As the accompanying figure (*Fig.* 10) shows, the results in this case were the converse of the preceding, the change of level being about equal to the former. The time consumed in this experiment was two hours more than was occupied by the previous one.

By keeping the same liquids and varying the tissue, or by changing the tissue when the same solutions were retained, I have been able to modify these results almost at pleasure. The same tissue in different stages of disease will exert different agencies, as was manifested in the case of an inflamed peritoneum taken from an ascitic patient.

The usual or normal action of a tissue in these experiments, is disturbed by soaking the structure in some astringents. Thus, a piece of cuticle was tried after it had been dipped in a weak solution of tannin, and at another time in a strong solution of alum; and it was found that substances, which before were transmitted very

readily, were now much retarded in their passage through the membrane.
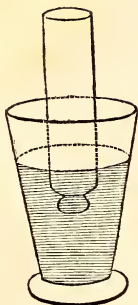
Fig. 11.

Perceiving that, in many instances, the liquids performed their movements in opposition to gravity, I was curious to ascertain if they would be able to overcome a greater mechanical resistance. With this view, a piece of membrane was tied over the mouth of a bottle, (*Fig.* 11,) which was previously filled with a solution of sulphate of potash, and the neck inverted in a vessel of pure water. In six hours the membrane was found greatly distended outwards, the tension increasing for four hours longer, until the cohesion of its parts was no longer competent to balance the peculiar molecular force due to the organic structure, when the membrane burst. By an estimate which is easily made, I find that the force of transmission, in this case, could not have been less than four atmospheres, and we are entitled to conclude that it would have been still greater had the membrane withstood the pressure.

The laws of the transmission of fluids through organic structures, are exhibited in results which are equivalent to a species of chemical decomposition. To render it evident that a liquid will pass through a membrane, when the substance which it holds in solution may be retained, I instituted the following experiment.

One extremity of a tube, (*Fig.* 12,) was fitted with a membrane, as usual: a solution of nitrate of potash was placed in it, and the whole was dipped in a vessel of lime-water. After the lapse of some

Fig. 12.

hours, the liquid in the tube was found elevated; and being tested for lime by oxalic acid, it gave no indication of its presence. The water had, therefore, entered the tube, but the lime had been arrested. Comparing this result with that of a former experiment, (p. 288, *Fig.* 8,) we perceive that they differ in one essential point; for, in that first peformed, the lime was forced through the membrane by mechanical pressure, in company with the water, while in the other, the membrane, exerting its own influence, unaffected by any controlling power, a separation ensued.

By far the most curious experiments which I have performed with membranes are the following:

Prof. J. F. W. Johnson of England, in his report on chemistry,

made to the British Association, states that M. Wache, a German chemist, had succeeded in separating copper and one or two other metals from their solutions by the use of a diaphragm of bladder; but the rationale of the action in this experiment is not mentioned.

Fig. 13.

My own arrangements for extending the results of Wache, were suggested by this notice. One plan which I adopted, was the following:—a portion of pure water and a few fragments of iron were placed within a tube, over the end of which was a membrane, which was immersed in a solution of sulphate of copper. A deposite of pure metallic copper soon showed itself on the under surface of the membrane, covering it in two days with a beautifully brilliant botryoidal mass, thicker than a cent. The figure here given, will furnish some idea of the appearance of this deposite. By this plan I have separated gold, silver, and several other metals from their solutions. Employing the membrane in the form of a bag to contain the water and the particular metal or other body essential to the action, I have procured, by a simple method, the arbor Saturni and the arbor Dianæ under highly beautiful forms, as seen in *Fig.* 14.
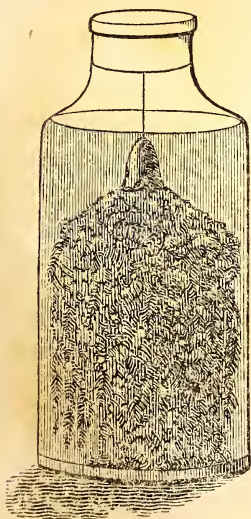
Fig. 14.

In contemplating these experiments, we are led irresistibly to attribute an important office to the membrane itself. It should be mentioned, that not the least trace of the metallic precipitation shows itself upon the inner surface of the membrane, as long as this remains sound and uncorroded; and when, in course of time, some does collect there, it seems not to assume the regular and elegant form so peculiar in the deposite on the outside.

From what we see, then, to attend the normal action of a membrane, the precipitation of the metal externally, and the formation of a salt in solution on the inside, containing the same acid before in combination with that metal, we can hardly resist the conviction that the acid

is liberated on the outside, passing through in its insulated state.   To suppose that the sulphate of copper is transmitted undecomposed, seems to require that the copper should be precipitated on the inner side, which is not the case; and to conceive, that, after being abandoned by the acid, it can retrace its way through the membrane, is to imagine a power in the structure more wonderful and incomprehensible than any thing yet presented; for it implies a transmission of a body in a state in which it is considered to be undissolved.   An equal difficulty attends the notion that the iron in any condition travels to the acids to precipitate the copper and return as sulphate of iron. Were the membrane clogged with the metallic deposite throughout its substance, the idea of a passage of the metallic matter might receive some support; but there is no interstitial deposite; the mass of copper, on the contrary, is readily detached, in one single piece, from the surface of the membrane, without either rupture or injury, so that it can be again employed in fresh precipitations.

Very different effects from those here detailed present themselves, when bodies of the structure denominated porous are employed. Thus, substituting a stucco-plug in place of the membrane, we find the whole of the deposite to occur on the *inside,* and none at all on the exterior surface, indicating ordinary capillary absorption.

During these experiments with membranes, I have noticed that gas is given off on both sides of the interposed structure; whereas, in the ordinary chemical reaction of the same materials, this evolution of gas is not observed. The nature of the gaseous product, I have not yet had sufficient time to determine.

Fig. 15.

To bring this investigation more in contact with physiology, I performed the following experiment. A piece of skin taken from a limb that had been amputated a moment before, was secured across the end of a tube, (*Fig.* 15,) in the manner adopted with the membranes generally, placing the cuticular surface outwards: it was carefully washed and immersed in some pure water.   Some freshly drawn blood that had been kept from coagulating by agitation, was put into the tube; and after the whole had remained some hours, the water was examined, and yielded, with nitrate of silver, a distinct white precipitate, showing that a portion of chloride of sodium had been transmitted through it.   Thus we see that the mere structure itself of the skin is sufficient to explain the transudation of the saline substances, which, during life, are evolved upon its surface, and, in dis-

ease, accumulate beneath it. Analogy leads me confidently to hope that secretion generally will be found to explain itself by a similar law of action, residing in all glandular structures. I have reason to believe, from experiment, that urea may be artificially procured from blood, by placing this fluid in contact with a slice of kidney. Having obtained, however, but one insulated result, I offer it with that diffidence which the importance of the conclusions dependant on it render necessary.

Of the evolution of heat by organic tissues.—The chief changes of temperature in the inorganic world have been referred by chemists to friction, chemical affinities, and the numerous changes which matter undergoes in its physical forms, such as changes from the solid, liquid, and gaseous condition. I am not aware that it has been distinctly recognised or ever alluded to, that mere absorption or any molecular movement not accompanied by chemical change, has the effect of developing heat. The curious results to which I believe I have arrived upon this point, will be found, I conceive, to possess important bearings upon sundry inquiries both in physics and in physiology.

I shall begin with a simple and ready means of showing the evolution of heat by absorption of a gas, and refer to the accompanying figure, which conveys an idea of the manner in which the indications of temperature are procured. The fluid in the globular vessel (*a*) (*Fig.* 16) is water, the upper portion being occupied by carbonic

Fig. 16.

acid, which, as fast as the water absorbs it, is supplied through the tube (*b.*) The thermometer, which was on the differential principle, made the change of temperature very obvious.
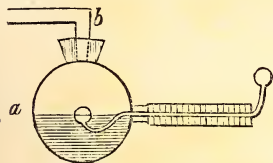
For the purpose of experimenting upon the developement of heat produced by the transmission of gases and liquids through structures, I have devised a delicate differential thermometer, in which the fluid is ether. This instrument is represented in *Fig.* 17; (*a*) is a leaden ring, to protect the flattened bulb within it; (*b*) is a paper balloon, surrounding the other bulb, (*t*,) and sheltering it from the interfering influence of the air.

An apparatus was contrived at the same time, enabling me to experiment widely upon the transmission of gases and liquids through organic and other structures. It is constructed with a view to obviate the numerous sources of error from interfering influences, such as

25*

gravity of the fluids, mechanical pressure, difficulties of manipulation attendant upon the ordinary means employed.

Fig. 17.
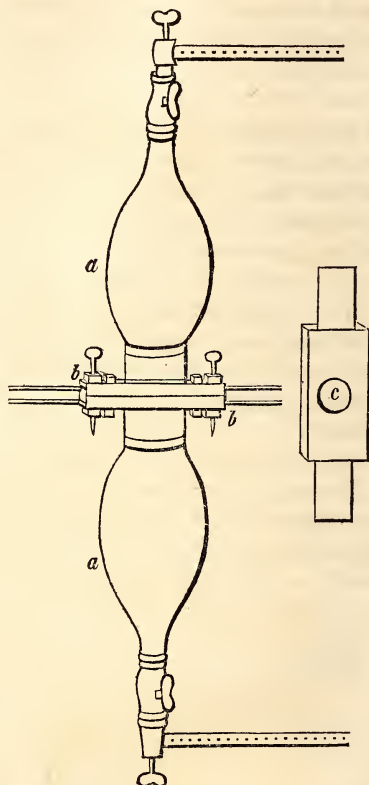
Fig. 18.

This instrument, the same by which I have been enabled to detect an elevation of temperature during the experiments on the movements of gases and liquids through tissues, is represented in *Fig.* 18. It consists of two glass vessels, (*a, a,*) each having its neck fitted with a stop cock, to which is attached a barometer tube accurately graduated. The other end of each glass vessel is closed by a steel cap, containing an air tight slide, both cap and slide furnished with a large round hole (*c*). The two vessels are firmly fastened together by clamp screws, bringing the two metallic caps in close pressure upon the interposed membrane or structure. In all experiments upon

the evolution of heat, the flat leaden ring of the thermometer described above, (*Fig.* 17,) is placed between these two plates or caps, (*b, b,*) the tissue or structure being also stretched across the ring, and in contact with one side of the flat bulb. By tightening the screws, the atmospheric air is excluded. By moving to and fro the slide contained in each cap or plate, a communication between the interior of the two vessels can be established or cut off at any moment. Changes in the volume of the fluids contained in the vessels, are seen by the movement of the mercury in the graduated barometer tubes or guages.

I have not been able, through want of sufficient time, to repeat and extend the interesting results which I have succeeded in procuring by the use of this apparatus, so as to put them out in the form which I consider suitable. I am induced, therefore, to withhold them for the present, in order to have it in my power to offer them at a future day in a digested shape, with the results properly tabulated.

Furnished with a number of fundamental facts derived by the several methods above explained, from direct experiment, we are now prepared to take up the consideration of the several functions which stand at the head of this essay, with a hope, may I be permitted to say, somewhat strengthened, that we are approaching a solution of their proximate causes.

It has been already noticed, in speaking of some experiments performed upon the blood, that neither exhaustion nor heat has the effect of evolving from it any carbonic acid. For the sake of seeing what effect the presence of other gases would have in promoting the separation of the gas here mentioned, five tall tubes, (*Fig.* 19,) sealed at
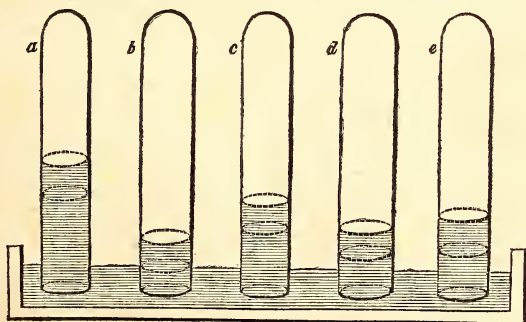
Fig. 19.

one end, were taken, and 200 grains of venous blood passed into each. Into one (*a*) was passed 200 measures of *oxygen;* into (*b*) the same volume of *hydrogen;* into (*c*) an equal bulk of *nitrous oxide;* into (*d*) the same portion of *nitrogen;* and into (*e*) an equal volume of *carbonic acid.* The blood in that tube, in which this fluid was in contact

with oxygen, was much reddened; it was less so in that where the nitrous oxide was; still less where the hydrogen was; while no apparent alteration of colour whatever was perceptible where the nitrogen was present. These conditions continued for nearly eight hours, at which time 40 measures of the oxygen had disappeared, a less proportion of nitrous oxide, a small amount of nitrogen, and no hydrogen that was discernible, but a bulk of carbonic acid, exceeding that of the blood, had disappeared from the tube *(e.)*

Agitating the several residual gases in the tubes with barytic water, not the slightest precipitate showed itself, to indicate the escape of any carbonic acid from the blood.   In all those instances, where an

Fig. 20.

absorption of the gas by the blood took place, there was a decided developement of heat. This can be illustrated by referring to an experiment in which oxygen is employed in contact with blood in a vessel *(Fig. 20)* having, as seen in the figure, a cap through which a thermometer can be made to slide. The tube being partially filled with oxygen, and allowed to repose some time over the mercury, in order to acquire a settled temperature, some venous blood which had stood some time over mercury for a similar purpose, was transferred into the tube until it filled nearly all the space not occupied by the oxygen. Before the introduction of the blood, the temperature of both it and the gas was 60°; but an absorption of oxygen very soon ensued, and after 15 minutes the thermometer stood at 70°, when the experiment was discontinued.
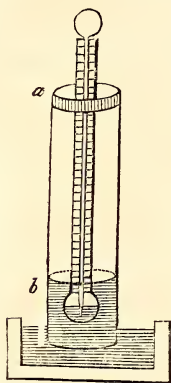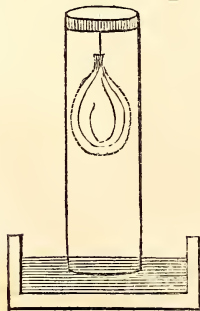
Fig. 21.

A small bladder, *(Fig. 21,)* not long taken from a pig, was filled with fresh venous blood, when it was closed and suspended by a thread from the cover of a tall receiver, which fitted air tight.   The receiver standing over mercury, was then filled with oxygen, and in two hours the mercury in the bottom of the receiver was considerably depressed. Upon inspecting the contained air, a very sensible quantity of oxygen had disappeared, but was replaced by a still larger amount of carbonic acid, the excess of which explained the depression in the mercury.

This experiment was varied by making trial of other gases, as hydro-

gen, nitrogen, and bicarburetted hydrogen; and in every case with a developement of carbonic acid.
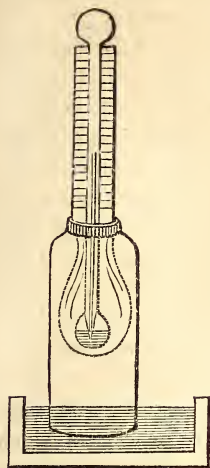
Fig. 22.

In order to ascertain if, during this evolution of carbonic acid and disappearance of the other gases, any elevation of temperature ensues, an apparatus, such as is seen in the margin (*Fig.* 22,) was made use of. Using my form of Sanctorio's thermometer, described above, it was plunged to the bottom in a bag, consisting of membrane, and full of blood, the bag being tightly secured at the neck, and suspended in an atmosphere of oxygen. In this instance the result was in a high degree satisfactory.

A considerably greater rise of temperature was manifested, proceeding no doubt from the joint influence of the absorption of oxygen and the transmission through the membrane of carbonic acid.

Let us now recapitulate the leading facts developed in regard to the evolution of carbonic acid from venous blood.

1. Exhaustion by means of the air pump has no effect in evolving carbonic acid from venous blood.

2. A temperature of 212° displaces no carbonic acid from venous blood.

3. The carbonic acid, on the other hand, is *absorbed* by exposing it to venous blood.

4. Exposing venous blood to oxygen, nitrogen, hydrogen and nitrous oxide, though each of these, if we except hydrogen, is in part absorbed, yet not a particle of carbonic acid is given off.

5. When, however, a portion of venous blood is placed in a bag of some membrane, and the whole immersed in an atmosphere of some gas, oxygen, hydrogen, nitrogen or bicarburetted hydrogen, (others have not yet been tried,) then carbonic acid is pretty freely evolved.

What a beautiful solution of the problem of respiration is presented in the facts here announced. The close accordance between the conditions of the last described experiment and those embraced in the function should be adverted to.

Among the mammalia, the lungs at each inspiration are supplied through the bronchial tubes with a large amount of atmospheric air, while the pulmonary veins, ramifying over their parietes, convey to them a large supply of blood. There, opposed to one surface of the

tissue of the lungs, is an atmosphere of oxygen and nitrogen; and, in contact with the other, venous blood; so that, precisely as in the experiment, carbonic acid becomes eliminated at each expiration.

Comparing the large volume of carbonic acid expelled during every contraction of the lungs with the small quantity procured in my experiments, it might at first sight seem rather strange that so large an amount should be produced during respiration, from the cause assigned. But our surprise vanishes as we take into contemplation the disparity in the amount of surface brought into operation in the two cases. The whole area of the external surface of the bag did not exceed eight square inches, while it is computed that the mucous membrane of the lungs presents to the air a surface of not less than 1200 square feet, folded into innumerable cells, and in contact with the oxygen and the blood, between which it appears to be the means of maintaining a most curious species of connexion. Adopting the fundamental views established by the experiments described in this essay, we are furnished with a simple and satisfactory solution of the manner in which fishes and other aquatic animals having gills, are enabled to separate the respirable element from the fluid in which they live.

We behold, in like manner, how the whole difference in the mode of respiration of animals and plants may be the result of some simple contrariety in the intimate structure of the animal and vegetable tissues, allowing, as we see, oxygen to pass inwards and carbonic acid to go outwards, and in plants effecting just the reverse.

Whether the carbonic acid exists in the venous blood in a state of combination in the condition of carbonic acid, or whether only its uncombined elements are present previous to its elimination as a gas, are points beyond our reach to determine.

It does not appear by any means certain that the oxygen taken into the lungs, at any one given respiration, is essential to the formation of the carbonic acid evolved immediately after; for in some of my experiments it was found that both when carbonic acid was disengaged and when it was not, a portion of oxygen disappeared, and in other cases carbonic acid was given off when portions of hydrogen, nitrogen, and bicarburetted hydrogen were absorbed, though none of these contain any oxygen, nor can it be supposed to furnish that element in any manner to that gas. Some researches of Edwards, in which small animals were caused to breathe atmospheres of hydrogen and nitrogen, rendered the notion that oxygen is indispensable still more impossible, because, while they continued to respire at all, they expired carbonic acid; and arresting the experiment before the animals were destroyed, it was found that each had eliminated a volume of this gas

equivalent to its own bulk. I have extended these experiments to bi-carburetted hydrogen, and with corresponding results. It would seem, as before intimated, that the extrication of carbonic acid is rather an action belonging to the tissue in virtue of its organized structure, so that the conjecture of Ellis, however erroneous in point of fact, which attributed to the lungs a power of secreting carbon, was an important step, approximating us to that view which recognises in the lungs a function somewhat analogous to that of a gland.

Source of heat in Animals and Plants.—The origin of the heat developed during animal and vegetable life, has been as much a matter of controversy as the subject of respiration itself. Any one who will be at the pains to trace all the innumerable theories and conjectures which have been invented to explain it, will find in what an unsatisfactory condition the whole doctrine rests at present.

Some have considered the chief source of animal heat to arise from the production of the carbonic acid given off during respiration. Others have imagined it to come from various chemical changes presumed to occur in the system. Some explain it by digestion; some by circulation; while some call in the nervous influence or innervation. If we except the first of these explanations, which has called forth much discussion on both sides, we find that the advocates of the several hypotheses enumerated, have done but little to trace animal heat to the causes which they assign. I believe I may be allowed here to say, that the important facts upon this subject, which I hope I have succeeded in developing, have hitherto entirely escaped attention. The manner of establishing the heating influence of transmission through tissues, I have already detailed; and a still more comprehensive law of all organized structures may now be stated—that whenever a structure, in virtue of its molecular forces, causes a passage of a fluid through it, an elevation of temperature ensues. It flows as a legitimate deduction from this law, that heat must be eliminated every where throughout the animal or plant; for, scarce a function can be executed in any part of the system that heat will not be developed. Thus, during respiration, a tissue is traversed by oxygen entering and carbonic acid passing out from the blood. So in its round of circulation, the blood crossing from the remote extremities of the arteries to those of the veins, through an intervening mass of structure, must, in this case, also develope an increased temperature; while, in like manner, during nutrition, a similar result obtains by the introduction of nutrient matter into the circulation, and its final assimilation; for in this, as in the

preceding functions, fluids are incessantly traversing the tissues of the system.

Venous Circulation.—Great difficulties are acknowledged to attend the explanation of the circulation of the blood through the veins. The principal causes assigned have been the contraction of the heart, the suction power of the heart, the contraction of the veins and arteries, and the action of the capillaries.

My own experiments proving the existence in the membranes of the body of a motive power over the liquids of the system, capable of overcoming great mechanical resistance, seem to present us with a new agency more adequate than any hitherto adduced to explain the phenomenon.

Secretion.—No direct vascular communication has been detected by anatomists between the arteries and veins of glandular structures. They trace them no farther than to the parietes of the acini; and it is not probable that any continuous connexion between the systems of vessels prevails. All the operations of organic life are executed in the minute structure of the organs. For the production of any change upon the blood, it must be subjected, therefore, to the modifying agency of this minute structure. The office of the vessels seems to be little else than that of a series of conduits distributing the fluid to appropriate parts of the system, where it is brought within the elaborating influence of the structures. We may regard, I think, every tissue as a species of glandular structure, in the proper sense of that term, inasmuch as we find that each elaborates a secretion peculiar to itself, whether it be recognised as a gland or not. For the synovial fluid is as much the peculiar secretion of the synovial membrane, and the mucous fluid as much the peculiar secretion of the mucous membrane, as bile is the appropriate secretion of the liver. The chief difference is, that, in the so called glands, the products are more apparent from being more insulated. The experiments in which substances were separated from their combinations will enable us readily to understand how this function may be performed in the system.

Nutrition.—The experimental researches detailed in the earlier part of this essay, afford us aid in explaining the manner in which nutrition is effected, equally satisfactory with that which it gives of the other functions.

We have seen that tissues possess a power of transmitting certain substances in preference to others,—in fact a separating or selecting

agency: and it is interesting to notice that, very recently, professor Daubeny has made some curious experiments upon the selecting power of plants in regard to earthy matters. We are enabled by these facts, to understand likewise the determination of particular medicines to particular organs, a subject which opens a rich and ample field for future investigation.

As another important application of my experiments, I may allude to the light which it casts on placental circulation. The absence of any discoverable vascular communication between the maternal and fœtal portions of the placenta, has seemed an insuperable difficulty in comprehending its functions; but all necessity for a vascular connexion is dispensed with, if we admit the power of a mere tissue to select and transmit liquids through its substance by an inherent force.

A further developement of the facts and principles which have been presented in this essay seems destined to remove the obscurity in which the explanation of them and other functions has hitherto been involved, and to throw a broad and clear light upon most of the important phenomena of the living organization. The experiments which have been detailed, form only a part of a series of investigations, by which it is hoped, ere long, to establish principles of fundamental importance in physiology, and to illustrate interesting collateral inquiries in physical science. In thus glancing at the important results which have been obtained, minute accuracy in the estimation of quantity or volume has not been attempted: but it is proposed, at a future day, to present an ample and varied detail of experiments, conducted with a view to minute precision, and the developement, if possible, of the numerical laws of the phenomena in each case.

Art. II. *Reports of Cases Treated in the Philadelphia Hospital at Blockley.* By W. W. Gerhard, M. D., one of the Physicians.

The Philadelphia Hospital at Blockley, is under the direction of the guardians of the poor, and is destined for the reception of a large proportion of the sick poor of the city and county of Philadelphia. It is one of the largest American Hospitals, and contains one hundred and fifty beds for medical patients, besides an extensive Lunatic Asy-

lum, large Surgical Wards, and an Infirmary for Sick Children and Lying-in women.

The medical service is entrusted to four attending physicians, four attending surgeons, and two accoucheurs. The physicians are on duty for six months each, and take charge of one half the medical and insane patients; they are expected to make daily visits to their respective wards; the surgeons retain the control of all the surgical wards, each being on duty three months in every year.

The attendance of the physicians would afford the necessary facilities for clinical instruction, were it not impeded by the arrangement of the course of medical study during the winter months.

A single morning in each week is devoted to the purposes of clinical medicine, a very insufficient time, even if the pupils were thoroughly prepared for this part of their studies. It was, therefore, necessary, during the past winter, to limit the lectures at the hospital to the indication of the more prominent symptoms of each disease, when the patients were brought before the class. Numerous examples of the more common diseases were presented, and such affections as were more rare were the better impressed upon the memory by frequently presenting them to the class, and afterwards comparing them with examples of those diseases with which they might most readily be confounded. The mode of treatment which seemed best suited to the case was directed. If the issue was unfavourable, the pathological appearances found after death were demonstrated at the succeeding lecture; if the disease continued, the patient was again presented, and any important changes in the treatment or the symptoms were mentioned at each successive lecture, until a complete cure.

Imperfect as this course was, in consequence of the embarrassment arising from instructing persons who visited the hospital too rarely to follow the complete progress of a single case, it is believed that some good was effected. Numerous specimens of diseases were offered, and the attention of the students was earnestly and constantly directed to the study of the facts presented by nature and to the logical deductions to be drawn from a comparison of these facts with each other. This method resembled very closely that pursued by Dr. Louis at La Pitié, at Paris.

During the winter there were opportunities of pointing out some diseases which are rarely well understood in America. These were the typhus fever or the dothinenteritis of some of the French writers, as distinguished from other affections attended by great prostration; there were several cases of cerebral disease, some of the rarer tubercular diseases, and numerous examples of the lesions of the heart or large

vessels. The more common affections, as those of the lungs and of the abdominal viscera were illustrated by numerous examples and frequent anatomical demonstrations.

The lectures were generally given by Professor Jackson, senior physician of the hospital, assisted by Dr. Pennock and the author.

During the summer months, the method pursued is a little different. The visits are made daily by Dr. Pancoast and the author, who gives occasional clinical lectures and instructs a class in the practical observation of disease. The facilities for medical instruction are, therefore, nearly as great as in the best European hospitals, and superior to those found in most of them.

General Character of Diseases during the months of November, December, January, and February, 1835-6.—The registers were not regularly kept, until the 1st of January. The cases noted, were limited to such as offered sufficient interest for the subjects of a clinical lecture. Amongst these were numerous examples of phthisis in different degrees of developement, some cases of disease of the heart and of the brain, but very few acute inflammations of the chest or of the abdominal viscera.

In January and February, the admissions for acute diseases were more frequent, and there remained numerous examples of chronic affections. Gangrene of the lungs, of which there were several cases in the earlier part of the winter, was not again witnessed. The common inflammatory pneumonia had been very frequent during the winter of 1834-5; but the cases of this disease admitted during the past winter were more obscure, and resembled the lobular pneumonia so frequent at the close of typhoid fevers, and at the termination of numerous infantile diseases. This variety of pulmonic inflammation retained its type during the winter months and throughout the spring, so that common, well marked inflammation of the lungs rarely occurred.

Bronchitis was rare at the beginning of winter, but numerous cases occurred in the variable weather of January and February, some of them simple cases of catarrh, a larger number were those of acute inflammation of the bronchial tubes, supervening on chronic catarrh, emphysema of the lungs or tubercles.

During the winter months there occurred eight or ten cases of mild dothinenteritis or nervous fever, none of which terminated fatally. Besides these cases, which were well characterized, I witnessed some examples of an anomalous fever, which I had never met with in the Parisian hospitals, and had not seen in Philadelphia during the preceding two years, although residing in a large hospital. The prominent

symptoms of this fever were great prostration, subsultus, delirium, coma and aberration of the senses, but neither diarrhœa, tympanitis, nor the rose coloured spots of dothinenteritis. The sporadic cases were the forerunners of the epidemic of typhus or spotted fever, which has prevailed during the months of March and April, and still continues amongst the negroes.

The first series of observations will include those of *gangrene of the lungs,* of which there were several cases.

CASE I. Mahorter, a white man, about 26 years of age, of intemperate habits, but never without a sufficient supply of food; was engaged in selling oysters in the open air on the 9th of October, and had previously been in perfect health. He was a little weaker than usual, but had no cough; his neighbours remarked that his breath smelt badly before he was himself conscious of any unusual smell. In the afternoon he lost his appetite and vomited; from that time anorexia, loose cough, fœtid breath, and expectoration nearly similar to that observed at his admission; he had afterwards chills, followed by fever and pain at the base of the right axilla. He was not obliged to keep his bed and took nothing but some simple medicines. Entered October 15; at his entrance was cupped on the thorax, and was ordered a laxative.

On the 16th, I saw him for the first time. He was small and not muscular; face slightly flushed; eyes natural; sleep good; intelligence and other cerebral functions unimpaired; considerable oppression; some pain at the base of the right axilla; decubitus on either side; cough short and loose; expectoration reddish, thin, slightly fœtid; respiration rather high, 28 in the minute; sub-crepitant and crepitant rhonchus abundant in the lower two-thirds of the right side; there is no bronchial respiration, but the resonance of the voice is a little increased about the root of the lungs; flat sound on percussion at the inferior and posterior part of the side; pulse 130, full; skin moist; no chills; thirst increased; appetite much diminished; bowels freely opened by the oil; tongue reddish and smooth at the edges, whitish and rather dry at the centre. Venesection to ten ounces. Morphia mixture, one grain to ℥vj. of mucilage; broth; bread; tea.

On the 17th, the sputa were browner and thinner, and, like the breath, were more offensive than before. Mucous rhonchus and gurgling at the lower part of the right lung, near the spine.

On the 20th, the sputa dark, very fœtid, and streaked with blood; the gurgling was more marked, and there was loud bronchial respira-

tion and bronchophony at the root of the right lung. The appetite was better; the pulse 84; respiration 28.

On the 22nd, the respiration had fallen to 20 in the minute. On the last mentioned day, there was cavernous respiration, gurgling, and well marked pectoriloquy throughout the lower third of the right lung.

On the 23d, the sputa consisted of a greenish, fœtid liquid, in which were rounded purulent masses. The fœtor had sensibly diminished; the gurgling was rather more liquid; in other respects the stethoscopic signs were unchanged.

The expectoration consisted entirely of muco-purulent liquid, running together into a uniform mass, and was nearly free from fœtor. The pectoriloquy was more perfect and the cavernous respiration less marked by liquid gurgling on the 26th. The quantity of expectorated liquid was still from ten to twelve ounces. In the night of the 26th to the 27th, he slept badly, and had some increase of pain in the side, the cough became more frequent, and the sputa greenish and very fœtid. Pulse 100; respiration 20; skin very hot; the gurgling ceased entirely, and the cavernous respiration became louder. A little neutral mixture was added to the other prescriptions.

On the 29th, the temporary increase of fever had ceased; the pulse was at 76; skin cool; thirst natural; expectoration more purulent; gurgling louder, more liquid, and very distinct cavernous respiration.

The expectoration from this date gradually became less fœtid, and more purulent, so that on the 5th of November the sputa were composed of well formed pus. In quantity they varied from six to eight ounces. The physical signs did not vary, except the gurgling, which was less and less distinct. The skin became pale—rather shrivelled; there was considerable emaciation, but not very great weakness. About Christmas, the strength of the patient was sufficiently recovered for him to be employed in the ward as an assistant. He continued in an out ward, capable of doing nearly a full day's work, and was finally discharged from the service of the institution in May. He was, therefore, more or less under my inspection for some months after his entire recovery. I made numerous examinations of the side of the chest affected, and observed the following changes. The cavernous respiration diminished gradually, but was still perceptible near the root of the lungs, until the end of the winter, when the respiration was merely a little blowing, but without the vesicular murmur indicative of a restoration of the healthy state of the lungs. The flatness on percussion continued, but it was in a less degree, and there was a little resonance of the voice. The expectoration

26*

gradually became mucous, and ceased entirely about the end of the winter.

Remarks.—This case is an unequivocal example of idiopathic gangrene of the lung, extending to the greater part of one lobe. The sputa, the fœtor of the breath, with the gurgling and cavernous respiration, proved that the gangrene had been followed by a cavity of considerable extent. As long as the mortification advanced, the sputa consisted solely of the liquid proceeding from the sphacelated tissue of the lung, a portion of which of a dark brown colour and very fœtid, was expectorated with the liquid. When the progress of the gangrene was arrested, and a false membrane began to form on the interior of the cavity, the sputa became purulent, and resembled the secretion from the parietes of a cavity which might follow gangrene in any part of the body. As long as the membrane lining the cavity secreted pus, this aspect of the sputa was continued; but, as cicatrization approached and the secretion of pus ceased, the character of the expectoration resembled, very nearly, the ordinary secretion of simple catarrh. When the sputa changed from pus to mucus, the loose liquid gurgling, observed at an earlier stage, was replaced by a strongly marked cavernous respiration, which continued as long as the expectoration was abundant. The physical signs of the lesion, therefore, coincided very closely with the variations in the sputa, and with the progress of the natural symptoms, throughout the whole course of the gangrene. Thus, the physical signs confirm and give greater precision to the rational symptoms.

After entire recovery had taken place, the respiration never returned to its normal state, but remained feeble and always a little blowing. These phenomena probably arose from the induration of that portion of the lung which immediately surrounded the gangrene after the cicatrization and partial obliteration of the cavity, as the air scarcely enters the pulmonary vesicles after the contraction which follows the natural process of cure. The percussion was necessarily dull, for the same reasons which rendered the sound of respiration feeble.

The *treatment* throughout the progress of this case was extremely simple, and directed in such a manner as to favour the natural progress of cicatrization. At the entrance of the patient, a bleeding and cupping were directed, in order to remove the pain caused by the inflammation of the pleura, consecutive to the gangrene. As soon as the pleurisy ceased, no other medicines were given, except an anodyne mixture, to allay the frequent cough, with a tonic infusion towards the termination of the case. The diet, at first, consisted of broth and vegetables, and, when cicatrization had commenced, an

allowance of meat was given. All means which might have debilitated the patient, were sedulously avoided, as the evident anatomical lesions could only be remedied by allowing sufficient time for the process of cicatrization to become complete. Its progress was carefully watched, and my object was simply to avoid all accidents which would check its course.

CASE II. *Gangrene of the Lungs in the upper Lobe—Distinct gurgling and other signs of a Cavity—Fœtid Breath and Expectoration—Feeble and blowing Respiration after Cicatrization.*—Thomas Powel, æt. 34, an Irish labourer, of rather intemperate habits, was admitted into the hospital at Blockley on the 12th of November, 1835. He has always enjoyed excellent health, with the exception of an attack of typhus fever, sixteen years ago, in Ireland, and another of intermittent, about ten years afterwards, in America.

He was working on a rail-road during the summer, and continued drinking freely of spirits and sleeping in badly warmed cabins. On Thursday, three weeks before his entrance, he fell asleep in the open air, and was wet with rain; during the next two days he felt chilly, and lost his appetite; on the Sunday the cough began, but he suffered no pain until the middle of the following week, when he felt much soreness across the chest. The cough constantly increased. The expectoration began a week after the cough, by the sudden discharge (as if by vomiting) of three gills of very dark blood; the sputa afterwards resembled in aspect and in fœtid smell those observed at his entrance. The sleep was interrupted by the frequent cough, which was increased by lying upon the left side or on the back; no chills or cold sweats at night; great thirst, anorexia; dyspnœa much increased by active exercise; slight diarrhœa. His strength gradually diminished, but he did not quit his work until the hæmoptysis occurred. Emaciation gradual.

Nov. 13th. Present state. Slightly emaciated, but of large muscular frame. No peculiar colour of skin; the face is flushed and a little livid; strength sufficient for a walk of several miles; no œdema; intelligence and cerebral functions in a normal state; tongue clean, rather reddish and smooth. He has no bad taste in the mouth, except on coughing. Appetite had not been destroyed; thirst nearly natural. Abdomen soft, not tender on pressure; stools natural. No chills or sweat; cough moderately frequent, rather dry; the expectoration is thin and watery with floating rounded sputa, consisting of pure pus and very fœtid; breath fœtid; no pain in thorax; decubitus on the right side is preferred, but he can now lie on his back. Pulse 92, rather full; respiration 25, regular.

The chest is well formed; percussion flat in the upper two inches of the right side at its anterior part, and in the upper half posteriorly; in the lower portion at least as sonorous as usual. The resonance is natural throughout the left side; the respiration is pure and vesicular throughout the left side, a little rough near the clavicle. On the right side the respiration is bronchial near the clavicle and in the posterior and upper part of the lung, where there is some liquid rhonchus; in the rest of the lung it is natural. Pectoriloquy near the summit of the right lung. Venesection ζx. Morphine mixture, vegetables and soup.

On the 16th, the pulse had fallen as low as eighty in the minute; respiration 20. The patient is gay, walks about, face rather pale, skin cool. Expectoration purulent, thick, running together in masses; cavernous respiration (well marked in both inspiration and expiration) in the upper anterior third of the right side, followed by a little crackling after coughing; at the posterior part the cavernous respiration is still more distinct in the upper two-fifths.

During the next two months, the patient presented one of the most evident examples of pectoriloquy in the ward, and, on that account, was often pointed out to the pupils. In February, the sputa began to diminish in quantity, and the cavernous respiration was less loud.

In March the expectoration ceased, and the respiration at the upper part of the right side was feeble, though without vesicular sound, and a little blowing, both in the inspiration and expiration. These characters continued during the residence of the patient at the hospital, and probably did not afterwards disappear. He was discharged from the ward in March, and left the house in April.

The *diagnosis* of this case, at first, might have been doubtful. The situation of the cavity at the top of the lungs and its small extent, rendered it similar to tuberculous excavations, but the odour of the expectoration and of the breath, the rapid formation of the cavity and the speedy recovery of the patient were sufficient evidence that the case was one of gangrene of the lungs, passing through its stages rapidly and terminating in recovery, as soon as the restoration of the sphacelated portion of the lung could be effected. The data for the diagnosis, were, therefore, nearly as complete as they were in the first case, and the precision with which the progress of the lesions could be traced, was nearly as great.

The *treatment* was simple, a single bleeding to relieve the pleurisy and bronchitis, which complicated the gangrene. Afterwards, anodynes were directed, to allay the cough, and a light tonic infusion towards the close of the disease. The diet was liberal throughout.

Case III. *Gangrene extending to the lower Lobes of both Lungs—abundant grayish fœtid Expectoration—Gurgling and Cavernous or Bronchial Respiration at the base of the Lungs—Entire recovery.* —A man, 36 years of age, of large frame and well marked muscular developement, was admitted into the Pennsylvania Hospital on the 13th of November, 1834. He was employed at various kinds of labouring work, and was last engaged in digging sand in the Delaware river. He had been severely ill but twice, once in the winter of 1820-21, of a disease which was apparently some form of typhoid fever. He was ill again in the summer of 1826, when he kept his bed three weeks, with severe cutting pain in the bowels, frequent stools, pain and tumefaction in the pericordial region, short breath and difficult decubitus on either side. Slight cough and expectoration of yellowish sputa, once or twice mixed with blood. He recovered from this complaint (pleuro-pneumonia?) but, though he is not short breathed, he cannot work as long as formerly.

On the 10th of November, he was quite well, came on shore and drank some spirits and porter. In the evening he was taken with pains in the limbs, vomiting, and purging; extreme thirst—(spasmodic cholera)—was relieved at his entrance, after taking a few doses of laudanum and using various external applications. On his recovery from cholera, he was attacked with delirium tremens on the 17th of November, (great restlessness, tremors, and seeing strange objects:) he was treated by opiates; (twenty drops of laudanum every two hours;) slept well, and recovered. He coughed a little before the attack of delirium tremens, but the resonance on percussion was good on both sides of the chest, and the respiration was pure and vesicular. On his recovery from this disease, the cough was much more frequent and the expectoration presented the characters afterwards observed.

On the 23d, the respiration was pure, except a little mucus at the root of both lungs. Pulse 80; skin cool; nutritious diet; anodyne mixture; sinapism to the chest.

29th. The skin was of a dusky livid hue, and cooler than natural; the hands wrinkled like those of a washerwoman; lips livid; eyes dull; his intelligence good and sleep natural, except from the cough, which comes on in paroxysms, followed by the expectoration of a dirty greenish-gray mucus, at least twelve ounces in the twenty-four hours, like the breath, of a very fœtid odour; tongue clean; appetite indifferent; constipation. Pulse 80, rather feeble, but regular; respiration 16; other functions not altered. The percussion was very sonorous, on both sides, throughout the whole chest; the respiration was

pure and expansive, except at the lower third of each lung, where there was an abundant mucous or sub-crepitant rhonchus.

On the 2nd of December, the bronchial respiration was loud, and combined with mucous rhonchus at the lower third of each lung, especially the right, and on the 7th, there was loud cavernous gurgling from an inch below the spine of the scapula to the base of the lung, with strong cavernous respiration, so that the air seemed almost blown into the ear from the chest. On the left side, there was gurgling and bronchial respiration, extending from the base, but much less intense than on the right. The percussion was very obscure in the lower parts of each side of the chest, but elsewhere it was sonorous, and the sound of respiration was nearly natural. Pectoriloquy and bronchophony were observed at the seat of the cavernous and bronchial respiration. On the 26th, the gurgling and bronchial respiration had sensibly diminished. On the 6th of January, at the left side, the respiration was vesicular, but feeble, except very near the base of the lung, where there was a little subcrepitant rhonchus. There was still an imperfect bronchial respiration at the middle part of the right side, with a few bubbles of mucus; in the lower third there was a subcrepitant rhonchus; the resonance of the voice was moderate and normal, except at the lower and posterior part of the right side.

At his discharge, near the end of January, the respiration was of natural strength, except at the lower third of the right lung, where it remained feeble and blowing. The expectoration retained the fœtor and grayish-yellow colour until the 23d of December, when it became less fœtid, and of an opaque white. It increased to nearly a quart in the twenty-four hours about the 20th of December, and from that time gradually diminished until the middle of January, when it ceased. The pulse was never more than 80 in the morning, but a little increased in frequency towards evening. The respiration was never more than twenty-four in the minute. The appetite was always bad. One slight attack of diarrhœa at the beginning of December.

The treatment consisted of an anodyne mixture to allay the cough; porter, port-wine, oysters, and full animal diet, with the solution of the chloride of soda, in quantity equal to forty drops of Labarraque's solution, three times daily.

Remarks.—The duration of this case of gangrene of the lungs was nearly forty days; there was little fever, and no other evidence of inflammatory reaction during its course; the pale, bronzed and shrivelled aspect of the skin indicating a deficient supply of red fluid, as well as a change in its composition. The disease occurred in a

patient enfeebled by an attack of spasmodic cholera, and with a constitution deteriorated by his intemperate habits.

The extent of the cavities included the whole lower lobe of the right lung, and at least half the lower lobe of the left. Their formation was marked by the gradual passage of the sub-crepitant into the mucous rhonchus, and finally into gurgling and cavernous respiration. These changes in the sounds of the respiration coincided with the increase in the quantity of the expectoration. As the disease advanced towards a cure, the gurgling was gradually replaced by a mucous rhonchus, and finally disappeared; a feeble vesicular respiration was then heard over the affected portion of the lung, which was probably owing to the conducting properties of the hardened tissue around the cavity. The expectoration was never very dark nor very liquid, unlike its usual appearance in this disease. The treatment was limited to the administration of opiates, and to full nutritious diet, with porter and wine, and afterwards the sulphate of quinine. The chloride of soda seemed to diminish the fœtor of the expectoration, and was of some advantage. The influence of the other remedies was much more obvious, and in all probability prevented the death of the patient. The indication for the use of tonics and nutritious food was even more unequivocal than in the other cases, as the pulse was not frequent and the skin was cool and wrinkled from want of a sufficient supply of blood in the capillary system. The case affords a striking illustration of the powers of resistance of the system, when assisted by proper remedial agents.

CASE IV. *Note of the Examination of the Respiration of a patient cured of Gangrene of the Lungs eighteen months previously.*—A seaman, 52 years of age, entered the Pennsylvania Hospital in November, 1834. He was of a stout, robust frame, but considerably emaciated, and stated that his health had been generally good until the summer of 1833, when, after exposure to rain, he was taken suddenly ill, with pain in the right side of the chest, cough and expectoration of yellow viscous matter, of a very fœtid odour. These symptoms came on two days after a copious hæmorrhage from the lungs, when he discharged about a quart of blood; it was repeated, but in less quantity, fourteen hours after, and again at intervals, for a day or two. Since that time he coughs a little, and is subject to shortness of breath, with which he had never been previously affected. There was some fever at the time, but no chills, nor much night sweats. The facts were confirmed by one of the physicians who formerly attended the case and who then regarded it as one of decided gangrene. The patient

remained in the hospital two months, and was afterwards well enough to go to sea, although there still remained a little cough and dyspnœa.

At his entrance, I found the following alterations on the right side of the thorax. The chest was well formed, except a little contraction at the posterior and inferior part of the right side, and a slight depression of the corresponding shoulder. The percussion was very slightly dull near the right clavicle; it was generally dull at the posterior part, but especially so between the scapula and the spine. Percussion sonorous throughout the whole extent of the left side.

The respiration offered some sibilant rhonchus on both sides of the chest, in other respects it was natural on the left. On the right side the inspiration was feeble throughout; no distinct expiratory sound; subcrepitant rhonchus near the base of the lung. Fever moderate; cough, and slight expectoration of white mucus. The disease for which the patient was admitted was regarded as chronic catarrh, with probably a deposite of tubercles.

Remarks.—The signs indicative of the previous gangrene, were limited to the feebleness of the respiration and the dull sound on percussion. The cure of the disease seemed complete, but the patient did not entirely recover his strength, and, at his second entrance into the hospital, was probably tuberculous.

Case V. *Note of the examination of the Lung of a patient dead nine years after the cure of Gangrene of the Lungs.*—A man between fifty and sixty years of age, entered the Pennsylvania Hospital in the autumn of 1835. A dray had passed over his leg, causing compound fracture of both bones, and extensive contusion of the soft parts. He was of very intemperate habits, and soon after his entrance was taken with delirium tremens, of which he died. Before the delirium came on, his intelligence was remarkably good. Nine years previously, after an injury of the hand, followed by suppuration and sloughing of the tendons, he was attacked by severe disease of the chest, with cough, dyspnœa, and dark sputa, of so offensive a smell that no one could remain in the room with him. There was also pain towards the base of the left axilla. He recovered after several months illness.

The side of the chest affected, yielded a feeble sound during the act of respiration, but, as the attention was not at the moment especially directed to it, my examination was necessarily slight.

On inspection after death, there were adhesions of the lower lobe of the left lung to the ribs. The tissue was less voluminous than usual, denser, and near the larger bronchi there was a flattened cavity an inch long, and of nearly the same breadth, communicating

with a bronchial tube, and lined by a smooth membrane, not very un-
like that of the smaller bronchi. The other lesions were unimport-
ant.

Remarks.—The variety of gangrene described by the patient, was
probably that which often complicates metastatic abscess of the lungs;
in this case it followed suppuration of the hand. There could be no
doubt of the real nature of this disease, which was well described by
the patient. The cyst found after death was very small, but it was
only the remains of a large cavity. Its limited extent was clearly
owing to the contraction of the tissues during cicatrization. The
tissue of the lung presented no other alteration than increase of its
density, with partial obliteration of the air-cells, its colour was darker
than usual, and resembled in many respects the splenitized lung of
pleurisy.

Case VI. *Gangrene of the Lungs terminating in death, occur-
ring in a healthy patient, after working in cold, damp rooms.*—A
married woman, 41 years of age, of temperate habits, was admitted
into the Pennsylvania Hospital on the 18th of May, 1835. Married
seventeen years, and has had four children; never ill but once, nine
years since, with cough and soreness of the chest, but no severe pain.
During the winter was perfectly well; on the 6th of May, went to
work in a new house, in which the painters were at work, and very
damp. The smell of the paint annoyed her; three days afterwards
she became pale, felt weaker, and had much pain throughout the ab-
domen. She then left the house, and the pains ceased. On the 13th,
she complained to her husband of the singular smell of her breath;
she was pale and weak; lost her appetite, but had no pain in the side;
great thirst and vomiting several times repeated; constipation. On
the 14th, increase of these symptoms; cough and expectoration of
greenish and yellow matter. In the night of 14th to 15th, severe chill
and pain in the left side, but she coughs less when lying on it than on
the other; vomiting every day; one or two mouthfuls of blood were
spit up on the 15th. She was bled on the 15th, and had mustard ap-
plied to the side.

At her entrance, her nose was sharp, face haggard, neither pale
nor flushed; lips large and pale; moderate emaciation; cannot lie on
right side; sleep natural; intelligence perfect; cerebral functions, in
general, natural; voice feeble; no soreness of throat; breath very
fœtid, of a gangrenous odour; pain across base of left axilla only felt
after coughing; skin moist, of natural warmth, pale, not bronzed;
constant nausea and frequent vomiting of food or drinks—even pure
water; anorexia; great thirst; no pain in the abdomen; one stool last

evening.   Pulse 96, feeble; respiration high, 26; cough frequent and hollow; expectoration greenish, thick, running together, very fœtid, of a strong gangrenous odour, nearly eight ounces in twenty-four hours.   The percussion was dull throughout the whole left side, especially towards the base of it, and in the axilla.   The respiration was feeble throughout this side; there was no bronchial respiration, but a little sibilant rhonchus, with some mucus.   Elsewhere the sound of percussion and of respiration were both natural.   *Sinapisms* to *the chest; effervescing draught;* a quarter of a grain of morphia every six hours.   She vomited after the morphia.   The sputa and breath became more fœtid and brownish on the 21st.   There was distinct gurgling on the left side on the 26th.   On the 28th, the respiration was amphoric throughout the lower two-thirds of the left side, both anteriorly and posteriorly, with loud liquid gurgling.   The sound on percussion, at the same spot, was louder and more hollow than natural.   On the right side, there was a little mucous and sonorous rhonchus, but the percussion throughout was nearly as loud as natural.

The expectoration was still greenish, about eight ounces in twenty-four hours; tongue dry at the centre; pulse 106; respiration very irregular, 24 in the minute; extreme anxiety and oppression; countenance livid; skin swarthy; urine natural; cough very frequent and hollow.   From this time the anxiety gradually increased until death on the night of the 2nd to the 3d of June.   The countenance was more livid and the expectoration nearly ceased in the last twenty-four hours.

Autopsy, June 13th, *thirteen hours after death.*—*Exterior.*   Some emaciation; no infiltration; rigidity moderate; skin a little yellowish, livid posteriorly.

Head not examined.

Neck.—Pharynx rather pale, not ulcerated.   Œsophagus pale livid, epithelium detached in parts; no ulcerations.   Larynx bright injection of the mucous membrane, thickening, limited to the vocal cords; no ulcerations.

Trachea injected, neither thickened, ulcerated, nor softened.

Thorax.—Percussion made before the autopsy, is very sonorous on both sides of the chest anteriorly.   On the left side, the percussion is extremely sonorous at the posterior part, especially near the middle, where it gives a perfectly hollow sound.   On the right side, it is obscure below the scapula.   No evident dilatation of the chest.   In the left lung the upper lobe grayish, and containing much serum in its whole extent; vesicles twice or thrice the natural size along its anterior margin: no induration, tubercles, or gray granulations.   Lower

lobe strongly adherent to the pleura by a firm yellowish false membrane nearly two lines thick. The pulmonary tissue retains its grayish colour in the upper inch, is infiltrated with serosity but not granulated, and contains air—the lower three-fourths of the lobe forms a vast cavity, filled with a dark greenish liquid of a strong gangrenous odour; the sides of the cavity are formed of sphacelated tissue similar in colour to the liquid. There is no hardening or injection of the tissue near the cavity; it remains soft and only a little more infiltrated with serum than usual. Bronchi, reddened and thickened near the cavity; some partially eroded, others are completely cut off on reaching the gangrenous liquid. The right lung is permeable to the air throughout, but near its root it is of a dark gray colour and infiltrated with serum. The heart was pale and flaccid. The other viscera were carefully examined, and were entirely free from any lesion worthy of mention.

Remarks.—The gangrene occurred in a healthy woman, and came on as insiduously as in the other cases. The earliest symptoms were the feebleness, nausea and fœtid breath. The cough occurred at a later period, and the pain in the side was not felt until a secondary pleurisy complicated the disease of the pulmonary tissue. Thus the gravest disorganization of the parenchyma of the lungs is almost entirely unattended with pain as long as the pleura is not implicated. The physical signs did not materially differ from those observed in the cases which terminated in recovery, nor was the extent of the gangrene so great as in one of these cases, (No. III.) where the lower lobe of both lungs was involved. The most unfavourable symptoms in the case were the high fever and extensive pleurisy. There was so much irritability of the stomach that neither food, medicine, nor drinks could be taken in sufficient quantities. A blister was applied to the chest, but it failed to relieve the patient. Had the disease been steadily treated from the first day, or had the bleeding which was resorted to on the day after the supervention of the pleurisy, been properly followed up by other appropriate means, other results might have followed. The indication was clearly to check the secondary inflammation by the usual remedies and to keep up the patient's strength by opiates and a supporting treatment, until the progress of the gangrene could be arrested.

CASE VII. *Gangrene of the right lung, following Gangrene of the Mouth. Perforation of Pleura. Pleuro-pneumonia.*—A labourer, aged thirty-six years, was admitted on the 10th of April, 1836. In July last, taken with rheumatic pains not attended by swelling of the joints. These pains occurred after he had been obliged to work in

the water, and never ceased until his entrance. In November, he
was received into the hospital with mania-a-potu, and on his recovery
was employed as a labourer in the yards of the building, still suffering
from pains.   Previously to the rheumatism, he had generally been in
good health, although ill two or three times with fever. On the 9th
of April, he was taken with severe pain and swelling of the joints,
fever and profuse sweats, but no chills. At his entrance, the pulse
was full and of good strength. There was pain and soreness at the
knees and elbows; flat sound on percussion from the middle of the
sternum to the distance of an inch beyond the left nipple, and from
two and a half inches above the nipple to the base of the thorax.
Pulsations of heart feeble, impulse slight; imperfect bellows sound in
the first sound of the heart, second sound feeble.

He was treated by venesection twice of 16 and 12 ounces. Tar-
tarized antimony gr. $\frac{1}{6}$ nitrat. potass. gr. vj. q q h. lemonade, broth
and gruel. A Dover's powder was afterwards added at bed-time.
Hop poultices to the most painful joints.   The last bleeding was di-
rected on the 16th, on which day his breath became a little fœtid and
gums swollen, as if from incipient ptyalism.   The blood was cupped
and buffed. On the 17th, he complained of nausea and weakness; on
the 18th, the fœtor of the breath was much increased: the lower lip
swollen, and a whitish slough around the root of the teeth, and on the
inner side of the cheek. Salivation abundant; less rheumatic swell-
ing; no chills; sweat copious; pulse 120 less strong. Quinine 16
grains in 24 hours; pulv. Dover at night; dry chloride of lime to
the sloughs, and frequent gargling with solution of chloride of soda;
broth; bread. From the 24th to the 27th, a large slough had formed
on the inside of the cheek; on the 28th, its separation commenced,
and the cicatrization was complete on the 10th or 12th of May. He
was quite well for nine days, and rapidly regaining his strength.
About the 15th, slight cough; a little mucous rhonchus and expecto-
ration. On the 22nd, loss of appetite; chills and sweats after the fits of
cough; no pain in the breast or limbs. On the 23d, at 7 A. M., he was
sitting quietly in his bed, when he felt a sudden sense of oppression,
and after a little coughing, threw up a large quantity of blood, not
less than a pint and a half in the twenty hours, during which the
hæmoptysis lasted. It was very red and liquid, but not very frothy,
and seemed to the patient to come from both sides of the chest.
Cough very loose and frequent. The percussion was dull throughout
the whole of the right side, especially near the base. Respiration
feeble and mixed with much rhonchus at the lower lobe. Percussion
sonorous and respiration vesicular in the left lung.

The acetate of lead two grains, with half a grain of opium, were given every hour until he had taken four pills, when the hæmoptysis ceased. (Tea; bread; gruel.) On the 24th, the acetate of lead was repeated every three hours, and cups applied between the shoulders; countenance of patient very anxious; great dyspnœa; pulse feeble, and skin cool. The sugar of lead was given in small doses for one day more, although the hæmoptysis did not return. On the 26th, sense of smothering at the chest; expectoration still contains a little blood, is brownish and frothy, of a very fœtid smell; the cough was frequent; thirst; anorexia; cold sweats; pulse 120, quick, of larger volume; respiration 44, high; cavernous at the middle and base of the right lung; percussion dull throughout this side, except at the summit. (Blister to the right side; one grain and a half of morphia during the twenty-four hours; mucilage; two Seidlitz powders; gruel.) On the 28th, there was decided gurgling and cavernous rhonchus at the summit of the lung; the expectoration amounted to a pint and a half in the twenty-four hours, it was a black liquid, like very thin ink, very fœtid; skin cooler; pulse 116, larger; respiration 44. A blister was again applied to the side, when on rising to go to the close stool, he vomited a quantity of a dark thin liquid: the expectoration now became more thick and yellowish. On the 30th, no pain in the side; respiration 36; pulse 108, regular and quick; less sweating; emaciation increasing.

Porter; morphia solution; infusion of Prunus Virginiana; solution of chloride of soda.

On the 1st of June, he had slept badly; much more dyspnœa; pain renewed in the right side; decubitus high; respiration 52, very high; pulse 120, regular and feeble; expectoration yellowish green, very fœtid, (like putrid oysters) in ill-defined masses; skin cool and clammy; percussion of right side still dull; strong amphoric respiration at the whole posterior part, especially at the root of the lung; and very loud and liquid gurgling when patient coughs; amphoric resonance of the voice; the same character can be distinguished at the summit of the lung anteriorly, with feeble respiration towards the base; on the left side the percussion is sonorous; respiration pure and normal, except near the summit of the lung, where it is a little blowing.

Tincture of bark; ℨj. q. hora; porter; milk punch; two eggs daily; broth; biscuit.

On the 2nd of June, much prostration and dyspnœa; expectoration yellowish, rather less fœtid. Death on the morning of the 3d.

27*

Autopsy, thirty hours after death—Exterior.—Rigidity general; moderate emaciation; no lividity at the posterior part of the body.

Thorax.—Sound of percussion preternaturally loud throughout the right side, especially at the lower and lateral portion; no alteration of conformation; right pleura adherent at the part corresponding to the upper and middle lobes; at the lower lobe the surface of the lung and the costal pleura are covered with irregular patches of whitish lymph, very adherent to the surface of the lung, which is strongly injected; in the cavity of the pleura, there were six or eight ounces of turbid, greenish liquid, of a very fœtid odour. The upper lobe is pervious to the air, pale, but a little infiltrated with serum in its anterior half; reddish, and completely hepatized at its posterior part. The middle lobe is also indurated and impervious to the air, but not distinctly granulated. The lower lobe offers, at its upper portion, a cavity of the size and form of a large pear, filled with a greenish-black gangrenous liquid, in which are numerous shreds of the pulmonary tissue, consisting chiefly of the vascular branches, soft and putrid. The cavity was lined with a false membrane throughout nearly its whole extent, although in some parts the gangrenous pulmonary tissue forms its limit; the false membrane is of a yellowish white colour, of the thickness of common writing paper. The bronchi are cut off abruptly on reaching the cavity, and do not extend beyond its margin, their mucous coat is red and thickened; at the upper and outer part of the cavity, is a perforation, communicating with the cavity of the pleura, large enough to admit the passage of a common goose quill; it is placed in the middle of an irregular depression of a dull white colour, formed by the pleura altered in structure. The tissue of the lung around the cavity is hardened, infiltrated with serum and of a deeper red than in the upper lobe. The left lung is covered by a delicate reticulated false membrane, imperfectly formed, easily removed from the pleura, which is perfectly smooth, though brightly injected; there are a few ounces of serum in its cavity; the tissue of the lung is infiltrated with serum, but pale, and every where contains air; bronchi pale; no trace of tubercles or granulations in any part of the lung. *Bronchial glands* firm and paler than usual. *Larynx* pale, but the mucous coat of the trachea is reddened and thickened. *Heart* rather paler than usual, large, watery coagula in the cavities of each side; slight cartilaginous deposites at the base of the semilunar valves of the aorta and mitral valves. *Stomach* distended by a white liquid of a strong acid odour; mucous coat of a dull white in the cardiac two-thirds, traversed by bluish veins, and of pulpy consistence; in the rest of its extent of a pale slate colour, mammillated, a little thicken-

ed and firm. The large and small *intestines* were both firm and pale, but lined by a thick coating of whitish mucus. Glands of Peyer pale, and not developed as much as usual. Mesenteric glands pale and firm. *Liver* of the usual colour and consistence. *Spleen* slightly enlarged and pulpy. *Kidneys* firm and normal. *Bladder* contracted. The *brain* contained less blood than usual in its veins, and throughout its substance, and was unusually firm.

Remarks.—This case illustrates several important points in the history of gangrene of the lungs. The patient had been the victim of a chronic disease for some months, and had just recovered from an attack of inflammatory rheumatism, for which he was treated by blood-letting and other debilitating remedies. During his convalescence, gangrene of the mouth occurred, an affection at that time almost endemic in the hospital. I then expressed my fears that it might be followed by gangrene of the lungs; these fears increased when his cough began, and were finally realized by the sudden occurrence of profuse hæmoptysis, (a common precursor of gangrene,) followed by fœtid dark expectoration, mucous rhonchus, gurgling and cavernous respiration. The patient was treated as the others had been; the fever, cough, and dyspnœa diminished when the unexpected perforation of the pleura gave rise to a new set of symptoms, and finally caused the death of the patient. The signs of the perforation were the amphoric respiration, the liquid gurgling and the change in the appearance and odour of the sputa. These changes seemed to arise from the discharge of a portion of the contents of the pleura through the bronchi. At the same time there was a sudden increase in the severity of the dyspnœa and fever.

On the examination after death, it was shown that the progress of the gangrene had been arrested by the formation of a false membrane, enclosing that portion of the sloughing tissue which was not yet removed. If the cicatrization had not been arrested by the pleurisy, which followed the perforation, the patient would have recovered. The pneumonia was probably consecutive to the gangrene, but as the symptoms which marked the origin of these affections were to a great extent confounded with each other, it is not certain whether the pneumonia was a mere effect of the irritation of the gangrene, or whether it had preceded the mortification and had acted as its exciting cause. The pleurisy was evidently a mere consequence of the gangrene.

Case VIII. *Illustrating the distinction between Incipient Gangrene and Pneumonia.*—A man, 50 years of age, entered the hospital at Blockley, in December, 1835. He had been exposed to very inclement weather, during a journey to the city, and, on the night pre-

vious to his illness, had slept in a cold barn. He had coughed for some
days, but had no pain in the chest, and presented so few signs of ill-
ness that he was at first sent to an out ward, where he remained a day,
and was thence transferred to the cells.   He there suffered from a
slight attack of delirium tremens, which was speedily arrested, al-
though the cough increased.

I found him, three days after his admission, with an anxious coun-
tenance; respiration high and laborious, with dilatation of the nos-
trils; mucous and sibilant rhonchus at the lower part of each lung,
especially the left; percussion nearly as loud as natural; cough loose;
expectoration catarrhal; the dyspnœa and cough increased, while the
respiration became more feeble at the base of each lung, and at the
same places there was a slight obscurity on percussion, nearly equally
great on both sides.   Delirium returned in the last two days of his
life.   Death four days after admission into the cells.

It was found, upon examination, that the lower lobe of each lung,
especially the left, was engorged with reddish serum, as it is in the
first stage of pneumonia, the consistence was diminished, with a de-
cidedly gangrenous smell; no trace of decomposition of any other
part of the body.

Remarks.—Had this patient survived the first impression of the
disease, we should have witnessed the ordinary symptoms of gangrene
of the lungs.   Death occurred at so early a stage that the texture of
the lung was not broken down, although infiltrated with serum and of
a gangrenous odour.   The diagnosis during life was difficult.   The
dyspnœa and livid aspect of the countenance resembled the symp-
toms of pneumonia, while the physical sounds were doubtful.   Under
such circumstances, I looked upon the case as one of lobular pneu-
monia, similar to the lesion which is so frequent in children.   It is
not possible to recognise gangrene until the sputa become characteris-
tic.

In the preceding observations of gangrene of the lungs, the disease
occurred in patients who were either in good health, or at least free
from evident organic lesions.   But gangrene very often occurs in
patients whose lungs contain tubercles in different stages of develope-
ment, or who are affected with important organic alterations of other
viscera.   In this latter class of patients, are such as perish from me-
tastatic abscess of the lungs, followed by gangrene, a frequent conse-
quence of suppurating wounds or capital surgical operations.   The
anatomical characters of such cases do not differ from those of ordi-
nary gangrene.   In those examples which I have witnessed, the pul-
monary tissue was gradually softened and discharged by expectora-

tion.   The cavity was lined by a false membrane, which formed as soon as the progress of the gangrene was arrested, and secreted a purulent liquid until its cicatrization.

Gangrene of the lungs is sometimes a consequence of suppurations, not connected with external wounds.

Case IX. *Gangrene of the Lungs following abscess of the Liver.*—A weaver, 27 years of age, was admitted into the hospital in October, 1835. He had been ill for four or five weeks with a disease similar in most respects to intermittent fever. At his entrance, there were daily chills, which did not return precisely at the same hour, followed by fever and profuse sweating. There was not at any time complete apyrexia. At first, no local point of uneasiness could be detected, but, after some weeks residence at the hospital, I found some soreness and a slight tension in the epigastric and right hypochondriac regions. Blisters were several times applied to the tender spot with some relief. The sulphate of quinine had been already largely administered, but without arresting the chills. A little cough then began, with dyspnœa and frequent respiration, but no expectoration. There was slight rhonchus at the lower part of the left lung, and a little dulness on percussion; his thorax was not examined for some days before his death. The mind was gradually enfeebled.

An abscess, the size of a very large egg, was found in the right lobe of the liver, another, as large as a hazel nut, in the anterior lobe of the cerebrum. At the base of both lungs was a gangrenous cavity, containing a thin liquid of characteristic odour. The cavity was not lined by a distinct false membrane. The surrounding pulmonary tissue contained air, and was but little infiltrated.

During life, no sign revealed the gangrene. I was aware that the patient had disease of the lungs, and from the nature of his symptoms, I regarded the case as pleurisy, complicating tubercles not advanced beyond the crude stage. It was pleurisy with gangrene; as the cavity did not communicate with the bronchial tubes, the fœtor was not perceptible before death. Perhaps the real nature of the lesion might have been suspected, if greater attention had been paid to the symptoms, but it could not have been certainly known.

Case X. *Phthisis terminating in Gangrene.*—A black, aged about 35 years, had been in the hospital for many months with tuberculous disease of the lungs and intestinal canal. In May, 1836, he became much weaker; the expectoration was grayish and very fœtid. Large cavities, with gurgling and cavernous respiration, had long existed at the upper part of both lungs.

On examination after death, it was found that large tuberculous

cavities occupied the summit of each lung. The tissue of the lower lobes were of a dark colour, softened, infiltrated with liquid, and offered a decidedly gangrenous odour.

Examples of this kind are not uncommon; a considerable number of phthisical patients perish of gangrene, either of the tissue immediately around the cavities or of the lower part of the lung. The great feebleness of the patients renders the occurrence of gangrene during the course of phthisis, an almost inevitable precursor of death.

General Remarks upon Gangrene of the Lungs.—Pathological Anatomy.—The gangrene was situated in the lower lobes in every case but one. In two instances it was extended to both lungs. The right lung was rather more frequently affected than the left. The most common point of origin of the gangrene was at the upper and posterior part of the lower lobe. In the earliest stage, the pulmonary tissue was of a livid red colour, engorged with reddish serum, and slightly softened; the bronchi passing through it were reddened, but not thickened. The diseased lung was nearly similar to that of the first stage of pneumonia, but was much darker. As the lesion advanced, the texture of the lungs was softened, until it became of a pulpy consistence, and finally was resolved into a fluid of a most fœtid odour and dark brown colour, the pulmonary blood-vessels could still be distinguished in the midst of the liquid, and retained their natural aspect, except where the surrounding texture was broken down. Coagula obstructed the calibre of the vessels in some subjects; in the others, they were not carefully examined. If the disease proved fatal at this stage, I found the walls of the cavity formed of the pulmonary tissue, infiltrated with a dark liquid, and softened. If the disease was a little more advanced, the excavation was lined by a false membrane of new formation, separating the gangrenous cavity from the tissue of the lungs. This false membrane indicated the cessation of the gangrene; it was of dull white colour, not much thicker than writing paper, and was generally in contact with healthy pulmonary tissue. In those cases in which the disease was cured, the further progress of the lining membrane could still be traced by the changes in the expectoration. The purulent sputa gradually ceased, and were replaced by whitish mucus, as soon as the cavity was converted into a mucous or muco-serous tissue, very analogous to the lining membrane of the smaller bronchial tubes. In the autopsy, which was made of the body of a patient dead nine years after an attack of gangrene, the cyst remained perfectly distinct.

Symptoms.—Hæmoptysis occurs in rather more than half the cases of gangrene of the lungs. It is not the first symptom, but is preceded

by a catarrh, with mucous or subcrepitant rhonchus. The hæmorrhage of gangrene is usually more abundant than that which often occurs in pulmonary phthisis; the blood is dark and not frothy.

In every instance in which the patient was seen in the earliest stages of the disease, I could distinguish the humid rhonchi, indicating bronchitis, or at least the secretion of liquid into the bronchial tubes. There was in no instance bronchial respiration, dull sound on percussion, or other unequivocal evidence of pneumonia; and in one case only (that of Furey,) was there even reason to suspect that pneumonia may have preceded gangrene.

The smell of the breath and of the sputa was very fœtid in every case but one, in which the gangrene was latent. The odour in some cases, resembled gangrene of external parts; in others it was almost equally offensive, but of a different character. The gradual diminution of the fœtor indicates the cessation of the gangrene and the removal of the dead tissue.

The characteristic fœtor was offered by the expectoration in every case in which the cavity communicated with the bronchi, but the sputa were of various aspect, greenish-yellow, (Case III.) blackish and thin, (Case VII.) or brownish and green, (Case VI.); as soon as the slough separated, the sputa always became muco-purulent, and retained that appearance until the termination of the disease, when they consisted of simple mucus. The variations in the expectoration, therefore, indicate the changes in the cavity, and the gradual isolation of the sloughing tissue by a false membrane which afterwards secretes healthy pus.

The cough was neither severe nor painful in the early stages, but when the tissue was softened and the cavity formed, it was severe, harassing, and occurred in paroxysms which could not be checked until free expectoration occurred. The cavity was then cleansed of its contents, and the patient remained in comfort until the sputa again accumulated.

There was no pain, except when pleurisy complicated the gangrene.

The degree of fever was also exactly proportioned to the severity of the pleuritic inflammation.

The physical signs of gangrene were well marked in every case but one, that in which the lesion was latent; a mucous or subcrepitant rhonchus preceded the gurgling, which was developed as soon as the cavity had attained the size of a walnut, it was more liquid than the gurgling of tuberculous cavities, lasted until the entire evacuation of the gangrenous matter, and did not entirely disappear until the muco-

purulent sputa had diminished in quantity. The cavernous rhonchus gradually increased, after the liquid contents of the cavity were removed, and continued until cicatrization began. The dull sound on percussion was not very evident in the earliest stages of the gangrene, until the surrounding tissue was engorged, it was dullest when the sputa first assumed the gangrenous odour; it gradually diminished on the approach of cure.

Treatment.—In no disease are the therapeutic indications more clearly defined than in gangrene of the lungs. The different stages of the affection are so well marked, and differ so widely from each other that there is little risk of erring in the treatment appropriated to each condition of the disease. In the treatment, the most important distinction is between the gangrene itself and the secondary pleurisy resulting from it.

Gangrene occurs in exhausted subjects, either affected with diseases calculated to weaken the powers of the system or enfeebled by a life of intemperance. There are found exceptions to this rule; but one occurs amongst the preceding cases, it is that of the woman who was taken ill after working in a damp and cold apartment filled with the deleterious fumes of lead. The circumstances, therefore, under which the disease originates, as well as the evident absence of fever and the exhaustion of the patient, indicate the necessity of a tonic and supporting treatment. Wine, the preparations of cinchona, with nutritious broths, and other articles of animal food are required; to these remedies, opium should be added to allay the paroxysms of coughing. I have never used ipecacuanha, but if emetics should become necessary to assist the expectoration, this medicine is evidently more appropriate than the tartarized antimony or other debilitating remedies. The solution of the chloride of soda seemed useful, but it was used with some reserve from the fear of disordering the stomach.

The inflammation of the pleura and of the pulmonary tissue, which attends or rather follows the gangrene, requires a special treatment. When this inflammation is severe, the disease is of a more inflammatory type than it is in most cases, and is relieved by a bleeding, or, which is still better, by free application of cups to the side affected. Blisters were also of unequivocal advantage, and were more effectual in diminishing the pain of the consecutive inflammation than any other remedy. In short, the pleurisy was relieved by the treatment usually directed when it occurs without previous gangrene of the lungs. It is necessary to recollect that in gangrene of the lungs, prostration takes place more easily than in most other diseases, and that the

treatment which is most useful in relieving the secondary inflamma-
tion, may aggravate the tendency to gangrene unless conducted with
much discretion. The same necessity for the exercise of discrimination
on the part of the physician, exists in gangrene as in pulmonary con-
sumption. In both these diseases there are two principal indications,
one is to check the progress of the original affection by a supporting
treatment, the other to arrest the symptoms dependant upon the se-
condary pleurisy. Yet, singular as it may seem, gangrene of the
lungs is still treated by some practitioners as if it were an active in-
flammatory disease, to be cured by bleeding and restricted diet, in-
stead of tonics and nutritious food.

ART. III. *Fatal Pleurisy in a Tuberculous Patient, and Chronic
Tubercular Peritonitis : Cases, illustrative of Pathological Laws,
first pointed out by Louis; with remarks.* By ELISHA BARTLETT,
M. D., Professor of Pathological Anatomy in Berkshire Medical
Institution.

CASE I. Miss A. S., died December 8th, 1835, and an examina-
tion of the thorax was made, eighteen hours afterwards. The sound,
on percussion, was flat over the whole left side of the chest. On lay-
ing back the sternum, its serous lining, on the left side of the medias-
tinum, was found covered with a false membrane, as thick as com-
mon pasteboard, of a firm texture, organized, and containing red
vessels. It could be separated by a moderate degree of force from the
subjacent serous membrane. The thoracic cavity of the same side
contained about three pints of limpid, reddish serum. The lung, flat-
tened like the hand, from one and a half to three inches thick, was
pressed against the mediastinum. At the apex of the lung, there was
an adhesion between the pleural surfaces, of an oval form, nearly as
large as the palm of the hand. This adhesion was pretty easily de-
stroyed, leaving upon the pleura pulmonalis a rough, bloody surface.
The compressed lung, at its upper and thickest portion, was appa-
rently free from disease, and quite permeable to the air. On ap-
proaching the inferior portions, the tissue was of a deep red colour,
like healthy muscle, and it had the *carnified* appearance commonly
found in lung compressed by effused fluids. The lung in this state
contains little or no air, is less friable, and more flabby than the pul-
monic tissue in the first period of inflammation. It resembles, to a

considerable extent, the *splenified* condition so frequently found about the lower margin of the lungs after death from typhus. This compressed and inferior portion of lung contained a great number of gray, semi-transparent granulations, generally about the size of a pin's head. The entire surface of the pleura, lining the walls of the chest and the compressed lung, was covered with a fibrinous layer like the false membrane already described. Several very delicate bands, resembling in tenuity and transparency, the film of a soap bubble, were seen stretching across from the corresponding but separated surfaces of the pleuræ.

In the right side there were old adhesions, extending over nearly the whole of the superior, lateral and posterior parts of the pleuræ. The upper lobe of the lung had the hard, knotty, and irregular feel so characteristic of tubercular lung. On laying it open, it was found to contain two tuberculous excavations. The largest was about the size of a hen's egg, and was situated in the anterior part of the lobe, just beneath the surface, opposite the second and third ribs. The smaller one, about as large as a horse-chesnut, was at the summit of the lung. Both cavities were lined by smooth, firm, distinct cysts, and these were covered on their inner surfaces with a soft, friable, false membrane. Each cavity contained a small quantity of thick, creamy, inodorous pus. The entire remaining portion of this lobe was heavy and solid from the crude tubercles with which it was crowded. Immediately underneath the pleura, and exactly at the apex of the lung, there was a single tubercle, of a firm, cheesy consistence, as large as a robin's egg. The lower portion of the right lung was still in functional condition, but contained a large number of the gray granulations.

Case II. Miss E. S. died June 27th, 1835. The body was examined on the following day. The cavity of the pleura, on each side of the chest, was entirely obliterated by the universal adhesion of its free surfaces. The upper lobe of the left lung contained several tuberculous cavities. Most of them were not larger than a pigeon's egg. Very near the summit there was one nearly empty, about as large as the thumb. The whole lung on this side, from its apex to its base, and throughout its entire substance, was crowded with tubercles in their various stages of developement. Some were still hard and cheesy, and others were softened, like a thick homogeneous cream. The lung was almost wholly unfitted for respiration. The right lung was in a nearly similar condition. The tuberculous depositions were less advanced in their progress, and there was more healthy lung on this side than on the left. The proportion, however, even here, which

admitted air freely, was exceedingly small. It did not amount in volume to more than one quarter of the lung. The healthiest portion was in the anterior part of the middle lobe. On both sides, the tubercular matter extended very near to the lower margins of the organs.

The cavity of the peritoneum was almost as entirely obliterated by a general adhesion, as was that of the pleura. This adhesion, like that in the thoracic cavity, was, evidently, the result of chronic inflammation. It had none of the characters of a recent and an acute affection. There was no appearance of increased vascularity, and there was no effusion of serum. The mutually adherent surfaces of the peritoneum could be separated from each other without much difficulty. Underneath the intestinal peritoneum, especially that portion of it lining the small intestines, there were innumerable minute granulations of a cartilaginous hardness. Their average size was about that of a pin's head.

I did not see either of the foregoing cases before their fatal termination. The subject of the first was under medical treatment only two or three days previous to death. It was ascertained that she came from a distant part of the country in July last, with a bad cough. A fellow boarder says that the cough left her, although she is not confident that she was entirely free from it. At any rate, she was able to attend to her work till seven weeks before her death, when she was attacked with measles. After the subsidence of this disease, she resumed her work for one week. Since that time, she has had a troublesome cough and great dyspnœa, especially on lying down. She was unable to support the recumbent position for several days preceding her death. It may fairly be said that she went through the entire course of the tubercular and the pleuritic disease without medical treatment. In regard to the second case, the only circumstance, worthy of notice here, is the fact, that the peritoneal inflammation was wholly latent. The patient was attended, at different times, by a skilful practitioner, and during the entire progress of the disease, there was no symptom which could lead him to suspect the presence of any abdominal affection.

I have reported these cases, simply, as examples of certain curious pathological relations, to which the attention of physicians was first called by Louis. I am quite aware, that, as pathological histories, and apart from the connexion just spoken of, they are almost wholly valueless, for the very plain reason that they are but partial and imperfect facts, a small number only of the organs having been examined. But they are sufficiently full and definite to answer the purpose for which they are given.

In the first edition of Louis' *Researches on Phthisis*, published in 1825, the author says, "If the peripneumony, which supervenes during the latter stages of phthisis, marches rapidly and hastens the fatal termination, this is not the case when it manifests itself at an earlier period of the disease, the patients still continuing their occupations, not much emaciated, and their strength but slightly impaired. Under such circumstances, these intercurrent pneumonias are almost always cured, even though there may exist in the lungs tuberculous excavations. *The same cannot be said of a pleurisy, more or less severe, which may occur during the progress of phthisis. We have not seen it completely cured, one case only excepted, even when it came on while the tubercles were yet crude and unsoftened. The severity of the disease may be mitigated, the effused fluid may be partly absorbed, but it is not wholly removed, and after a shorter or longer time, the patient dies, having pulmonary tubercles, and the pleura in one side of the chest lined with false membranes, and its cavity containing effused fluids, varying in character and quantity in different cases.*"

The second pathological law, to which I have alluded, and which was first stated by Louis, is, that chronic, tubercular or granular peritonitis occurs only in phthisical subjects.

This is a proper occasion for adverting to the immense importance which recent investigations have attached to that peculiar, morbid product, to which has been given the name of *tubercle.* The presence of this deposition in the lungs themselves, of consumptive patients, has long been familiarly known to morbid anatomists, and even during the prevalence of very faulty and erroneous notions relating to the pathology of this disease, its great frequency and paramount importance were very generally recognised. It is now regarded by our most accurate observers as the sole and essential pathological element of phthisis. The numerous *varieties*, as they were called, of this disease, insisted upon even by comparatively modern writers, have either been disproved by more recent and more accurate researches, or found to consist of other distinct and independent affections. What is the famous *dyspeptic phthisis* of Dr. Philip? certainly not a specific individual disease, with a pathology and a symptomatology, and causes of its own. A patient, primarily phthisical, may, to be sure, become dyspeptic, and another, who has long been the victim of dyspepsy, may, finally, die with phthisis; and, in these cases, there will be a combination of the symptoms belonging to the two diseases. Perhaps we may go further, and assert, that, in some instances at least, there is something more than mere accidental concomitancy;—that dyspepsy may, by the various and powerful influences which it sends

throughout the system, kindle into fatal activity a tubercular tendency or predispositions which might otherwise have remained latent. But this is as true of various other affections as it is of dyspepsy; and if this kind of nomenclature is once admitted, we may have dyspeptic phthisis, and rubeolar phthisis, and moral phthisis, and, indeed, as many other kinds as there are indirect exciting causes. It is, certainly, very far from being proved that dyspepsy is any more productive of phthisis than many other diseases are. When I spoke, however, of the immense and increasing importance of tubercle, as a morbid product, I alluded more particularly to its newly discovered relations to other diseases than phthisis itself. Two very curious and interesting illustrations of this relationship are exhibited in the foregoing cases. Louis has found that acute pleurisy, occurring in a tuberculous patient, is almost necessarily fatal, and many observations made in this country have corroborated this opinion. Not the least remarkable circumstance in this matter is the fact, for so it seems to be, that the incurable character of the pleuritic inflammation is in no degree dependent on the extent and degree of developement of the pulmonic tubercles. Whenever it occurs, it is beyond the restorative energies of nature and the remedial efforts of art, alike in the incipient and in the advanced stages of phthisis. It seems to me that this circumstance forces upon us the conclusion, that the incurability of the pleurisy, in these cases, depends, not so much on the local disease in the lungs, as it does on a general condition of the system, of which the deposition of tubercle in the lungs is both an index and a consequence. The presence of this pathological product seems to indicate a state of the organization or a change in its vital properties, by which its recuperative powers, so far, at any rate, as acute pleurisy is concerned, are destroyed.

The readers of the American Journal can hardly fail to remember, in this connexion, the cases of tuberculous meningitis, both in children and adults, reported by Dr. Gerhard. These cases, so far as they go, lead to the conclusion that the fatal diseases of the brain and its membranous envelopes, occurring in children more than two years old, are almost exclusively confined to tuberculous subjects.*

These results in relation to some of the pathological affinities, if I may so speak, of tubercle, as important to the practical physician as they are interesting to the scientific student of pathology, are among the first fruits of what has been called, sometimes in derision, the *numerical system.*

* See American Journal for February and May, 1834, and for November, 1835.

28*

Art. IV. *Case of an attempt at Suicide, in which the Internal Jugular Vein was partially divided and successfully secured by Ligature.* By John George Morgan, M. D., Professor of the Principles and Practice of Surgery in Geneva College, New York.

Ebenezer Hooper, aged 25 years, of melancholy temperament, a native of the State of New York, had been confined in the Auburn State Prison four years, on a life sentence for the crime of rape.

Sunday morning, December 31st, 1832, on unlocking the cell doors, for the purpose of taking the convicts to the chapel, Hooper was found by his keeper suspended by the neck with a rope taken from his hammock. He was immediately cut down and brought to the hospital whilst I was making my morning's visit:—his face pale, his pulse feeble and irregular. After remaining for half an hour, however, I considered it in all respects safe for him to be returned to his cell, under the full impression that he did not intend to destroy himself, but simply to lead his keeper into that belief, for the purpose of obtaining some indulgence from labour.

The *Monday morning* following, about 11 o'clock, after my usual visit, I was in great haste summoned to the hospital. On arriving there, I found H. lying upon a bed, exhibiting the most ghastly appearance; the bed on which he lay and the floor about it were literally deluged in blood; and there was an incision about five inches in length, commencing near the sterno-clavicular articulation of the right side, following close upon the superior border of the sternum and of the clavicle of the left side for about three inches, continuing in its extent upwards and outwards.

Having left the hospital earlier than usual after prescribing for the reported cases, I left Mr. Hamilton, a student, to see the prescriptions carried out; and whilst attending to that duty, Hooper was brought to the hospital in this perilous condition. Immediate resort was had to plugging the wound with folds of linen united with pressure, by which means the hæmorrhage was partially restrained until I reached the hospital. In removing the folds of cloth from the wound, a prodigious burst of blood followed, as if the carotid and jugular had both been severed. Pressure was immediately reapplied as well as possible over the bleeding surface, and in a manner that checked the flow of blood. The pulse, which was greatly reduced before from this tremendous gush of blood, sunk to a flutter, and the patient swooned. The nurse, an active and faithful convict, was immediately stationed at his head, and by the application of volatiles

to his nostrils and temples, he soon roused sufficiently to swallow some xv gtts. of aqua ammonia diluted in water. I again removed the pressure, but the blood poured out with such force, that before we could determine by sponging the wound, what vessel was injured, the patient swooned again; the pulse scarcely perceptible at the wrist; a death-like chill came over him, and for a few moments he seemed in *articulo mortis.* Volatiles were again resoted to, with external warmth and frictions, and whilst in this depressed state of the heart's action, I cautiously raised the folds of cloth from the scapular extremity of the wound, and readily secured the superior thyroid artery, which had been divided, by a ligature. I then removed the folds of cloth from the wound entirely, and, by sponging rapidly, discovered the internal jugular vein nearly severed. With a blunt aneurismal needle, I passed a ligature from within outwards, about three-eighths of an inch above the wound, protecting the nerve and artery with my fingers, and aiding the passage of the needle through the sheath by a gentle motion of the intrument opposed to the nail of the index finger of my left hand. The needle readily passed, and the vessel was secured.

The difficulty did not stop here; the first effort to cough, (and such efforts were almost incessant,) brought the blood in a full current through the lower portion of the vein, retrograding from the subclavian.

The ligature which had been applied to the vein, was now handed over to my assistant, whilst I attempted to secure the lower portion of the vessel; this was a point of some delicacy. The cut having been made close upon the superior edge of the sternum and the sternal extremity of the left clavicle, further dissection became indispensable.

The vein being put upon the stretch by the ligature; with a delicate knife having a convex edge, I commenced my incisions upon the scapular side of the sheath, (making the index finger of my left hand the director,) and, by the most guarded dissection, succeeded in detaching the vein from its connexions for about half an inch below the superior edge of the sterno-clavicular extremity of clavicle: I then passed a silver-eyed probe, armed and bent to suit the situation, down upon the outside of the sheath, close upon the vein, until the end of the probe appeared opposed to the superior portion of the sheath between the artery and vein; by then scratching with my finger nail over the extremity of the probe, it readily passed. After being fully satisfied that nothing was included but the vein, I tied the ligature, and all hæmorrhage ceased at once.

In now examining the wound more particularly, I found the internal jugular vein divided in about three-fifths of its circumference, the

external jugular and the superior thyroid artery completely divided; the sterno-cleido mastoid muscle completely, and the sterno-thyroid partially severed. The razor, in passing from right to left, laid the sheath bare, but did not sink sufficiently deep in its course to injure the coats of the artery, and yet left the free opening in the vein.

I now sponged the wound with warm water, and directed the patient to cough, but finding no return of hæmorrhage, (after waiting for a short time,) I proceeded to dress the wound.

The cut edges of the wounded muscles were now brought accurately in apposition, and the lips of the wound united by suture and adhesive straps, dry lint placed over the surface of the wound and a thin compress secured by a few turns of a common roller around the neck.

I then took a double headed roller, carrying it horizontally around the head by two or three turns, and then under the axilla of each arm, making several turns over the head, and under the arms, in a manner to fix the head with an inclination towards the wound. The patient was next placed upon a mattrass, with his head and shoulders raised by pillows, and maintained steadily in that position. After being placed in bed, he complained of chilliness; his pulse was feeble, and great exhaustion was evinced. Warm flannels were directed to be wrapped around his extremities, a cordial draught was administered, and a little soup ordered to be given through the day, with strict directions for maintaining quietness.

The amount of blood lost was very considerable, though it was impossible to determine with any thing like accuracy, its quantity.

January 1st. 7 o'clock, P. M. Has taken soup several times during the day, without much difficulty in swallowing; the pulse about 90 per minute, and feeble. Ordered pulv. Dov. grs. iv. every four hours. Soup continued in moderate quantities.

2nd. 10 o'clock, A. M. The pulse slightly increased in frequency and rather tense; skin cool; slight cough; had obtained some disturbed sleep during the night; he complained of increased difficulty in swallowing; directed sulphate magnesia ʒvj. pulv. Dov. grs. iv. M.; chicken water. 8 o'clock, P. M., bowels had been gently moved, the pulse diminished in tensity, and somewhat in frequency; pulv. Dov. grs. v. at intervals of 6 hours; lemonade as drink.

3d. 10 o'clock, A. M., had obtained but little sleep during the night; pulse increased in frequency to 100 per minute, and tense; tongue coated and pain in left side of neck and head; ordered V. S. ʒvj. and barley water acidulated with lemon juice. 7 o'clock, P. M., pulse soft and reduced in frequency; swallowed with more ease; directed morphine $\frac{1}{4}$ gr. once in 6 hours.

4th. 10 o'clock, A. M. Considerable fœtor emitted from the wound; pulse 85 per minute, small. The roller and compress were removed from the neck and yest poultice applied over the wound; not the slightest approach to union by the first intention; chicken soup; quinine grs. j., sulp. morph. grs. ¼, combined, and given at the interval of six hours.

5th. 10 o'clock, A. M. Slept tolerably well through the night; fœtor diminished; yest poultice continued; do. morphine and quinine; soup.

6th. 11 o'clock, A. M. In removing the poultice this morning, the ligature came away from the superior thyroid artery; pulse free and soft; the discharge from the wound appeared more healthy; continued.

7th. 11 o'clock, A. M. The ligature embracing the vein above the wound, came away with the dressings which were removed, entire; pulse rather irritable, and discharge varies; bowels free; not the slightest appearance of union in any part of wound. Adhesive straps were reapplied; sulphate quinine grs. ij. morphine gr. ¼, at 8 hours; chicken or mutton soup for diet.

8th. 10 o'clock, A. M. No sensible change; treatment continued, with the addition of port wine and water.

9th. 10 o'clock, A. M. Ligature came away from the lower portion of vein this morning; continued.

10th, 10 o'clock, A. M. Adhesive straps removed; the edges of wound flabby, tense, and insensible. They were pared off with scalpel, and the wound reunited by sutures and adhesive straps; quinine and port wine continued, with animal food; poultice discontinued.

11th. 10 o'clock, A. M. Continued.

12th and 13th. Symptoms favourable; continued.

14th. The dressings were removed, and union was found nearly complete. From this time the adhesive straps were changed daily until the 19th, when the wound was found entirely healed; the straps were continued for a few days to give support to the recent adhesions.

20th. He was returned to his former employment, (tailoring,) under directions for moderate labour for a few days, after which he was placed at full labour, perfectly restored, with the slight exception, that, when his head was thrown backwards, he had, for a time, difficulty in suddenly bringing it forwards; from this he soon recovered, with as entire power in the movement of the head and neck as before the injury.

The danger arising from tieing large veins is universally admitted

to be much greater than tieing arteries of corresponding magnitude. Although the danger may not be so great where the individual possesses good general health, as some of the English surgeons are disposed to believe, yet it must be conceded that serious consequences arise from wounds on the application of the ligature to veins in a manner that rarely or never occurs to arteries.

The cases recorded where the internal jugular vein has been successfully tied under any circumstance, are few in number. I know of but two instances in which this operation has been successfully performed in this country besides the case under consideration.

One of these was performed by Dr. Stevens of New York, in 1830; the other by Dr. Gibson of Philadelphia, in Nov. 1832. - In the last case, the ligature was applied in consequence of the vein being involved in a tumour "occupying the whole of the left side of the neck," in the removal of which it became necessary to detach the vein, or secure it with a ligature. The details of this case, which is highly interesting in several particulars, may be found in the American Journal of Medical Sciences, Vol. xiii. No. 26, p. 305.

Auburn, N. Y., May, 1836.

ART. V. *On a new method of relieving persons affected with Prolapsus Uteri.* By SAMUEL ANNAN, M. D., of Baltimore.

The uterus, although supported by its ligaments and the surrounding structures frequently sinks down into the vagina, below its natural and ordinary position; and in proportion to its descent, is the cause of painful symptoms. Three degrees of this sinking have been described. The first or slightest form has been termed simply descent or relaxation; the second, in which the lower part of the uterus approaches the os externum, is called procedentia; and to the third, when this organ protrudes beyond the vulva, the term prolapsus has been applied. It has been said, "that these distinctions are not entirely useless in practice; for, though they are only different degrees of the same affection, they yet require a little difference in the mode of treatment." This may be true of the old plan. The method to be proposed is applicable to all, with this advantage, that the worse the condition of the patient, the more effectual is it in affording relief.

Dr. Dewees informs us that "of the many casualties to which the uterus is liable, the prolapsus may be considered as the most frequent, as well as the most troublesome, and that this displacement may take place at almost any period of life, he having witnessed it in the aged matron and prescribed for in the youthful virgin."

The pessary has hitherto been regarded as the only efficient remedy for this complaint; and various kinds, differing both in shape and materials have been proposed: wood, ivory, glass, elastic gum, and gilt silver have all been employed. Some are spherical in shape, some elliptical, while some are simply rings; and others the segment of a sphere. The same objections apply nearly in an equal degree to all. Irritation is the inevitable consequence of the constant pressure of a foreign body upon the delicate membrane lining the vagina; and in many instances it becomes insupportable, and the pessary cannot be worn. The silver gilt pessary recommended by Dr. Dewees appears to cause less irritation than any other. The gum elastic in my practice has soon become rough, and had to be removed. Ulceration has been produced in many cases; and a communication has been established between the rectum and vagina, and the pessary has passed into the bowel. I have heard of one case where a wooden pessary was worn for twenty years, leaving the vagina in a dreadfully ulcerated condition. But, supposing little or no irritation should result from the presence of this instrument, the employment of it must be exceedingly unpleasant to the unfortunate sufferers, especially to those who are married. Dr. Dewees tells us that some of his patients became pregnant while wearing it.

Another objection to the pessary is that it dilates the vaginia, and when removed, the uterus has a better opportunity for descending than it previously had. The vagina, in its healthful condition, is one of the chief supports of the uterus. The contraction of its muscular coat presents no inconsiderable obstacle to the descent of this organ. But after it has been kept in a state of dilatation during months or years, by a large foreign body, it is obvious that it cannot give the same support. It is owing to the debility thus produced, that the complaint, in numerous instances, instead of being removed, has been rendered worse. This has occurred in my own practice. The uterus descended lower, and all the symptoms were aggravated, after the removal of the pessary, from inability to endure the distressing irritation produced by it. We should be led to suppose, prior to experiment, that this would be the case in every instance, but we have examples of cures recorded by men of such high characters, that we cannot refuse our belief.

The instrument I am about to describe, was first employed by me in a case of prolapsus recti. My patient had been operated on once without permanent relief, and was unwilling to submit again to the knife. Her situation was truly distressing. During many months she had been prevented from walking out to take exercise, to improve her general health, or attend to business, on account of the descent of the rectum, which protruded when she walked, and also discharged blood. On one occasion, while standing in a store, before she was aware of it, a considerable puddle of blood had collected on the floor about her feet. I applied to Dr. James Knight, (then of this city, at present residing in New York, who has displayed much ingenuity in constructing a truss for hernia, which I have used with benefit in several cases,) and described to him the kind of instrument I wanted, with a request that he would have one made for me by his truss manufacturers. He informed me that he had caused just such an instrument to be constructed for a gentleman affected with prolapsus recti, but had not since seen him to ascertain its utility. The instrument is the same as the English and French surgeons have used for prolapsus recti. Dr. R. Coates refers to it in the article, *Anus*, American Cyclopedia, as follows:—"Mr. Gooch has published an account, with a figure, of a very well contrived instrument which he employed with signal advantage in an interesting case. It is a species of truss. The upper part resembles the spring and main strap of a common double truss, wanting the pads, and is designed to embrace the sacrum and the wings of the ilia. Opposite the base of the lumbar vertebra, a curved spring is attached at right angles to the upper part, and after following the curve of the sacrum it terminates in a pad intended to act upon the anus." The truss I have employed differs from the foregoing, in having a circular plate riveted to its centre, which has two narrow straps fastened upon it, under which the curved spring slides, and a small screw passing through holes, fastens it, so that by slipping it up or down the pressure upon the anus can be increased or diminished at pleasure. I also found it necessary to take the temper out of the curved spring, in order that the patient might bend it to any shape to suit the curvature of the sacrum. In consequence of this loss of elasticity, it had to be made somewhat stronger to make sufficient pressure.

The benefit derived from this instrument was far greater than I had anticipated. The rectum was retained in its position; the prolapsus completely prevented; and the lady walked to any distance without the least inconvenience from her disagreeable complaint. The tendency of the bowel to descent gradually diminished, so that she did

not find it necessary to wear it when going about the house. As is usual in such cases, she was greatly affected with hæmorrhoidal tumours within the sphincter ani; and, whenever she caught cold, inflammation of the part was the consequence, the pain being accompanied by most distressing tenesmus. The application of her suspensory truss at this time, afforded her indescribable relief from the constant bearing down sensation.

Having at the same time a patient with the uterus in that state of descent which has been termed procidentia, on whom various pessaries had been tried, with temporary relief, but who, for a considerable period, had been unable to wear any of them, it occurred to me that the same instrument somewhat modified might answer for the support of the uterus. The first trial was made by lengthening the curved spring, so as to throw the pad forward in front of the anus upon the perineum. This gave some support, but was found to be extremely inconvenient in walking, and in sitting down was apt to pinch the nates, and she refused to wear it. It then struck me, that, by reversing the whole apparatus and turning the curved spring in front, it possibly might answer better. The curved spring was accordingly greatly reduced in length, and she was directed to wear it in front; but she now complained that it passed in between the labia and caused great irritation and profuse leucorrheal discharge, and, when she sat down, the pad struck the chair, and incommoded her exceedingly. The curved spring was still farther shortened, and the pad made to press upon the posterior commissure and anterior portion of the perineum, thus removing the obstacle to sitting down comfortably; and so great a degree of curvature was given to this spring, that it lay outside, in front of the labia, thus obviating the other objection, and now the relief afforded was complete. The prolapsed uterus was perfectly supported, all the distressing symptoms were entirely removed, and, for the first time during many years, my patient was enabled to walk with ease and satisfaction. She has now been wearing it about two years, and walks the greatest distances with an entire freedom from all the symptoms of prolapsus, under which she had previously endured worse than the pains of dissolution. She now wears it only when she goes out to walk; and before putting it on, she wraps a clean linen or muslin cloth around it, which feels more pleasant than the oiled silk that covers the padding. When she returns, she takes it off, and does not find it necessary when going about the house.

In several other cases of prolapsus uteri, in this city, in which it has been tried, it has afforded complete relief from all suffering; and

that it is calculated to fulfil all the indications, is apparent at a single glance. By the pressure of the pad upon the perineum and posterior commissure, the uterus is well supported, its weight no longer bears upon the soft parts with which it is connected, and the cause of the gnawing and dragging sensations about the loins is entirely removed. In addition to this, instead of dilating the vagina, as the pessary does, the tendency of the pressure is to contract and diminish the size of that passage, and thus enable it to support the uterus without the assistance of the suspensory truss, and bring about an effectual and permanent cure. And, further, the pressure of the spring round the pelvis, gives no inconsiderable support to the viscera of the abdomen, diminishing their pressure upon the fundus uteri. In all these ways, it is conceived the instrument acts, and the sum of the whole is, that the sufferer is relieved.

This truss has not yet been sufficiently long in use, nor have a sufficient number of cases presented themselves to enable us to ascertain whether a permanent cure can be obtained, so as to render it unnecessary to continue to wear it. But if the result should be that our patients cannot dispense with it, there can be but little doubt that they will greatly prefer a decent instrument of this description, which is productive of no uneasiness whatever, can be taken off and put on without the assistance of a physician, and is a complete remedy for present suffering; to an instrument abhorrent to all feelings of delicacy, which can be properly adjusted only by a physician, and which, in many instances, instead of curing the disease, renders it worse, and brings on other symptoms, full as distressing as those from which the unfortunate sufferer obtains partial and temporary relief.

It remains only to say, that the curved spring should be eight and a half or nine inches long, from the lower extremity of the pad to the top of the circular plate upon which it slides; and it must not be forgotten that the tempering must be omitted, in order that the patient may give it a degree of curvature to suit herself, that it may lie outside of the labia externa.

Baltimore, June, 1836.

ART. VI. *A Sketch of Lithotripsy, with Cases.* By WILLIAM GIBSON, M. D., Professor of Surgery in the University of Pennsylvania, Surgeon to Blockley Hospital, &c.

It is now generally admitted that the operation of *lithotrity*, in the hands of prudent and experienced surgeons, possesses decided advan-

tages, *in certain cases,* over that of lithotomy. But it is also admitted that, to perform lithotrity with any prospect of success, requires great dexterity, extraordinary caution, gentleness, perfect familiarity with the use and knowledge of the mechanism of the instruments; and, above all, *instruments* so well constructed and tempered—so diversified in shape, size, number, and adapted to so many different purposes—as to place the operation within the reach of a very limited number of surgeons, however competent in other parts of their profession to excel and even distinguish themselves. Perhaps it will not appear strange, then, when asserted, that no man, now in existence, can be called a *perfect lithotritist*, except Civiale, who, as conceded by all that have witnessed his exploits, is as dexterous and successful with his *litholabe* and other forms of apparatus *peculiar* to himself, as can be imagined. From all this, it may be reasonably inferred, that the cause of failure in so many instances, amongst European and American surgeons, is mainly owing to intrinsic difficulties in the operation itself, to want of experience, to deficiency in mechanical ingenuity and tact, to want of proper instruments and skill in manœuvring them, as well as the idea so prevalent from the very moment of the discovery of *lithotrity* down to the present time, among physicians and others little accustomed to operations of any description, "that *lithotrity* is very easy and simple, and may be performed successfully by those who would not dare to venture on *lithotomy.*"

Fortunately, in this state of things, an important discovery has been made within the last few years, that there is no longer absolute necessity for resorting to *lithotrity*, but that the same end may be accomplished by other means, not less efficient, within the reach of a greater number of surgeons, less painful to the patient, attended with little or no risk, (if the surgeon is careful, the case adapted to the operation, and the patient willing to conform to certain regulations,) and, under favourable circumstances, certain of success. I allude to the operation of *lithotripsy*, which may be said, perhaps, to have been invented by Baron Heurteloup.

This operation is founded upon two principles—upon that of *crushing* and of *percussion*—the former chiefly adapted to soft and friable stones, the latter to hard and compact. To accomplish these purposes, several instruments have been invented, and various modifications of the same instrument proposed and executed. It is not my intention, however, to describe or comment upon any except the instrument of *Heurteloup* and that of *Jacobson*, both of which have been used sufficiently long in Europe and America, to enable us to arrive, with some degree of certainty, at conclusions respecting their
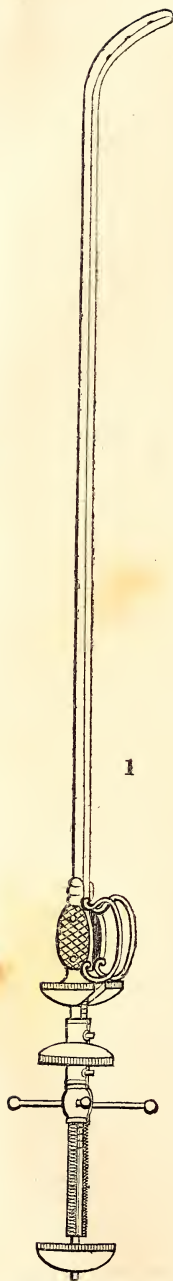
Fig. 2, the termination of the same instrument, the beaks separated.

Fig. 1, Heurteloup's *per-cuteur*.

merits and defects. Heurteloup's " *percuteur*," "*pince à deux branches*," or *lithotripteur*, as it should be called, is extremely simple in construction, remarkable for strength, and consists chiefly of two portions— a male and female steel rod, about twelve inches long, the former enclosed in the latter, and calculated to move backwards and forwards at pleasure, about the size of an ordinary adult catheter, straight for eleven inches of its length, and, at its lower extremity, turned up and gently rounded in form of a beak, at an angle of about 55 degrees. Near the upper extremity of the male rod, there is a graduated scale, intended to indicate the size of the stone, and the summit of the rod is terminated by a steel bowl, designed to receive pressure of the hand in crushing the calculus, or the blow of a hammer. In the latter case, the instrument is held within the grasp of a *vice*, which is applied to a square shoulder on the female rod, corresponding in situation with the graduated scale on the male rod. Above this shoulder, for two inches and a half in extent, is a *male* screw, upon which works a small tripod handle, calculated to drive forward the male rod upon the female, and, by *graduated* pressure, to break the stone. The extremities of the beak are serrated, (but, at the same time, so rounded off and guarded, as to prevent the possibility of pinching the bladder or urethra) and extremely well calculated to seize, retain, and fracture any stone of ordinary dimensions and hardness. The entire length of the instrument, from the summit head to the beak, for a full grown subject, is about 18 inches. For younger subjects and for children, it will vary, proportionally, in length and diameter. (See *Figs.* 1 and 2.)

Jacobson's instrument is not designed to act upon the principle of *percussion*, nor is it calculated so to do, but is used, when shut, to detect the presence of a stone, and, when expanded, to close upon and crush it, and would seem, when superficially examined, admirably calculated for the purpose. It consists of a silver cannula, eight or nine inches long, a quarter of an inch in diameter, attached to the superior extremity of which is a circular steel plate or rim, an inch wide. Through the cannula passes a steel rod, which projects beyond its lower extremity, two or three inches, in form of an ordinary sound, flattened and serrated on its concave surface, and smooth and half round on its convex. Connected with this extremity by a hinge, resembling it in form and size, but only an inch in length, is a piece of *chain*, which, in like manner, is attached to a second and a third portion, the last of which is riveted to a straight rod, which, like the former, passes through the cannula, for the length of twelve inches, and is intended to retract or expand the *links*, so as to produce, at will, the form of a common curved catheter or that of a loop. The superior extremity of the straight rod, last mentioned, for three inches in extent, is a male screw, corresponding with a female one, which passes through the centre of a double convex rim, intended to work the chain backwards or forwards, as may be required. (See *Figs.* 3 and 4.)

With either of the instruments above described and figured, the operation of *lithotripsy* may be conveniently and successfully performed. In

Fig. 4, the termination of the same, with the loop open.

Fig. 3, Jacobson's instrument.

29*

describing the mode of operating, however, I shall confine myself almost exclusively to the lithotripteur of *Heurteloup*, because I have been more accustomed to the use of it in practice, and because I think it possesses advantages over that of *Jacobson*, which I shall endeavour, afterwards, to point out, and which I think will be appreciated by all who are disposed to give trial to each, and are so situated as to be competent to decide between them.

It is a matter of no little consequence, before undertaking *litho-tripsy*, to determine upon the cases best adapted to it. To want of care in this respect, and perhaps to want of judgment in some cases, I may add, may be attributed, there is reason to believe, the mishaps which have occurred in so many instances, and which have been so sedulously concealed from the public eye, in Europe especially, while the successful cases have been as carefully blazoned forth. I shall not be accused, I trust, of making such remarks invidiously, when I assert that the reference is not to individual cases, or to *lithotripsy* alone, but will apply particularly to *lithotrity*. At all events, I shall set the example, if not already done by others, of stating the success-ful as well as unsuccessful cases, the only mode by which the profes-sion will be able to form a correct judgment with respect to an opera-tion still in its infancy, and, in many points of view, so interesting to science and humanity.

When applied to by a patient, supposed from the *symptoms* to have stone in the bladder, I would advise rest and quiet for three or four days, (especially if just from a journey,) the free use of diluents, and a gentle purgative. After this, and at a moment when the patient has less than his accustomed irritation about the region of the bladder and urethra, a simple steel sound, or a silver, or gum elastic catheter may be introduced very cautiously and deliberately, and moved in various directions for the purpose of detecting the stone, and judging in a measure of its size, situation, texture, shape, and for ascertaining whether it be rough or smooth; whether more than one, &c.

It often happens that the sound is introduced with the utmost faci-lity, and without much inconvenience to the patient, the bladder carefully explored, and no stone felt. In such cases, the surgeon should not rest satisfied, but, discontinuing his examination after a few seconds, should renew it again in a day or two, and sound at one time when the bladder is full, at another when empty, and endeav-our to make his instrument, though in the most cautious and careful way, enter into every nook and corner of the bladder, where it would be possible for the stone to lurk.

He should also place his patient, while sounding, in a variety of

positions—sometimes on his side, sometimes on his knees, and, upon other occasions, nearly on his head—never failing, in difficult or obscure cases, to introduce a finger into the rectum, for the purpose of elevating the stone, or of removing it from some cyst or hiding place, and of bringing it in contact with the sound. Very small stones, or fragments, may be touched repeatedly by a person unaccustomed to sounding, without his being sensible that there is a particle of foreign body in the bladder; and even an experienced surgeon will frequently find himself at fault in this respect. From having experienced more or less difficulty in detecting a stone, occasionally, I have, latterly, employed an instrument of peculiar construction for sounding, but not having fairly tested its advantages or brought it to the perfection I anticipated, I shall reserve further notice of it for a future occasion.

If the stone is distinctly felt, is of small size, and has not existed very long; if the patient is an adult, middle aged, or even advanced in years, has, in other respects, a sound constitution, and the bladder and urethra are not remarkably irritable, *lithotripsy* may be always resorted to, and with every prospect of success. But, on the contrary, if the stone is large, hard and rough, has existed for many years, the bladder extremely irritable, contracted, its walls thickened, the kidneys and ureters diseased, the prostate gland enlarged, the stone embedded in a cyst, or fastened upon a fungus; if there has been for months or years a discharge of purulent matter, or of large quantities of slime from the bladder, and the patient is advanced in years or enfeebled in constitution, there will be great risk in attempting *lithotripsy;* and the chance of recovery will be greater, perhaps, from *lithotomy,*—though, from the latter operation, also, patients thus situated, will be extremely apt to die. Both of these are, of course, extreme cases; and between the favourable and unfavourable, there are many intermediate grades, where success must depend, in a great measure, upon the judgment and experience of the surgeon in the treatment of calculous complaints, whether by lithotomy or otherwise. Again, there are cases, as in children, or very young boys, where, from the very small size of the urethra, or the unmanageable disposition of the patients, very little can be expected from *lithotripsy,* or any other operation than lithotomy, which last, in such subjects, fortunately, is almost invariably successful. Upon the whole, it may be stated, that there are many cases, particularly in middle aged and old people, which may admit of a cure by *lithotripsy,* if performed before the stone becomes large and the bladder diseased; and, in this point of view, the operation holds out many advantages; for there are hundreds of patients, who, if they could be

persuaded that their complaint, in its incipiency, admitted of relief by a process comparatively easy and free from danger, would willingly submit to it; but who would shrink from *lithotomy*, until compelled by years of suffering to undergo it, and then, unfortunately, with little chance of success.

Having ascertained the existence of stone in the bladder by accurate sounding, and determined to submit the patient to *lithotripsy*, the next proceeding, on the part of the surgeon, is to prepare him for the operation, by a regular system of diet, by depletion, if necessary, (and there is nothing in the case to contraindicate the measure,) and by the careful introduction of sounds, catheters, occasionally, in order to accustom the urethra and bladder to the use of instruments, to ascertain the exact position of the stone, its usual location, &c. In using such instruments, however, great care must be taken not to irritate the bladder, and to discontinue them the moment the patient complains; and, upon no occasion to *rake* the bladder, which cannot be done, even in the most insensible patient, without great risk of inflammation of that viscus, and even death. *Diet*, too, is of so much importance, previous to attempting the operation, as to be, in my estimation, almost a *sine qua non*, and ought to be strictly enjoined, in some cases, for weeks together, previous to any attempt to seize or break the stone. With most patients, I find a dish of black tea and a bit of dry bread for breakfast, and the same for tea, with boiled rice for dinner, together with a quart of barley water, (to which may be added, if required, a small quantity of cream of tartar to keep the bowels soluble) in 24 hours amply sufficient to support any ordinary adult, and admirably adapted to lesson irritability, keep down inflammation and soothe the urinary passages. By steady perseverance in these measures, almost every patient can be brought into a proper state to undergo the operation with fair prospect of success; but extraordinary vigilance is sometimes necessary to guard against irregularities and deviations, and to prevent a patient from deceiving himself as well as the surgeon. In this country, above all others, where food is so abundant that even beggars live luxuriously, and where the idea is so prevalent, among all classes, that strength is necessarily associated with plentiful supplies to the stomach, it is extremely difficult to persuade patients that they can go wrong in gormandizing. Unfortunately, in too many instances, they find out their mistake too late, and the surgeon discovers, to his great mortification, that he has been deceived and trifled with.*

---

* There is no establishment so much wanted in this and other large cities as a "*maison de santé,*" where patients, especially those from a distance, could be sub-

As an important preliminary to the operation, a firm, thick mattrass and several substantial pillows will be required, the former for preserving the patient in the most easy and comfortable posture, and to prevent him from being overheated, which is so apt to be the case when smothered in feathers, the latter for elevating the pelvis to the requisite altitude, by which movement the stone will have a natural tendency to subside towards the fundus of the bladder, the only position in which it can be seized conveniently. Some surgeons, *Heurteloup,* in particular, recommend an armed chair or kind of sofa, for the patient to lie on during the operation; but, independently of the trouble of carrying such a machine from house to house, more or less alarm is always created in the mind of the patient by such a formidable array in the shape of an apparatus, and as, in reality, there is no necessity for any but the most simple means, such as are within the reach of the surgeon in most families, he should avail himself of them with as little parade as possible. A time having been appointed for the operation, the patient should be enjoined to suffer the urine to collect in his bladder from two to four hours previously, and, upon no account, to permit any of it to escape. But some patients cannot retain their urine beyond an hour, or even so long a time. In that case, a gum elastic or silver catheter may be introduced, and the bladder injected with tepid water, by means of a syringe or gum elastic bag—taking especial care not to employ force or to distend the viscus too suddenly, or to throw in so large a quantity as to give the patient pain, otherwise spasm of the bladder may follow, and a train of other alarming symptoms. If possible, it is best to dispense with the injection, inasmuch as the introduction of the catheter always renders it more difficult to pass any other instrument immediately afterwards. As a general rule, too, I would remark that the best period for the operation is in the morning, before the patient quits his bed; for I have almost invariably observed, particularly in winter, the moment the patient rises and walks about his room, that there is tendency to spasm about the neck of the bladder, and that an instru-

jected to a regular system of dietetic discipline. The boarding-houses, even the best of them, are unfit for invalids, and the respectable ladies who often keep them too poor and too badly compensated to give the necessary attention to the sick. And as to *nurses,* they are often worse than useless, or only prove beneficial by consuming the delicacies, tid bits and potations intended by officious and foolish friends for their sick brethren. When will boarding-house ladies, moreover, divest themselves of the silly and pernicious idea, that by restricting the diet of invalids they will incur the reproach of starving them for mercenary purposes, and thereby hurt the credit of their establishments?

ment cannot then be so readily introduced as it might have been a few moments before.

These preliminaries having been settled, an assistant places one or more pillows beneath the patient's pelvis, another under his head and shoulders, and while the thighs are relaxed and brought nearly together, the body lying parallel with the bed and along its edge, the surgeon standing on either side or in front, having well oiled the lithotripteur, introduces the beak of it (the blades closely approximated) into the urethra, and by one slow but decided movement causes the instrument to glide along the passage, to which its own weight partly contributes, as far as the triangular ligament, which it is known to have reached by the slight resistance met with, and then by depressing the handle gently between the thighs, the point starts suddenly forwards through the prostate gland and enters the bladder. In general, the introduction is effected immediately, but in some cases difficulties are experienced, arising, there is reason to believe, from the difference in the conformation of different patients, from some being more irritable than others, so that spasms are induced, or from rudeness or violence on the part of the operator, or from his being too sudden and rapid in his movements, from an over anxious desire of aiming at feats of dexterity. If any such difficulties should arise, it is better not to persevere by forcible endeavours to overcome them, but to postpone the operation to a future period. Should a stricture, either spasmodic or permanent, exist in the urethra, the surgeon must previously get rid of that before he ventures upon *lithotripsy.* The lithotripteur having been introduced, is not to be carried about roughly from side to side, or fore and aft, for the purpose of raking after and suddenly hunting up the stone, but should be carried very slowly and gently towards the fundus or most dependant part of the bladder, and by the slightest touches with the heel of the instrument, an attempt made in various situations, from right to left, or *vice versa,* to detect the foreign body. During these manœuvres, there should not be the slightest whisper in the room, or complaint, if possible to avoid it, on the part of the patient. An experienced hand and an accurate ear will soon detect the stone, and be able to say by the peculiar sensation communicated through the vibrations of the instrument, whether the stone be rough or smooth, large or small, hard or soft, whether there be more than one stone, &c. However, cases now and then present themselves in which it is not so easy to feel the stone at once and determine its character and position. This may be owing to a variety of circumstances. The patient may be uncommonly irritable, spasm of the bladder may be induced, by which the

urine is forcibly driven from the bladder along the urethra and instrument, or there may be an hour-glass contraction of the bladder, the stone being in one part and the instrument in the other, or the stone may be encysted, or may lurk under the prostate, or there may be naturally uncommon width in the lateral diameter of the bladder, or the rectum may on one or both sides of the bladder, compress it and destroy its shape, or hæmorrhoids or hardened fœces produce a corresponding alteration in its figure. Under these and other trying circumstances, the surgeon should never forget that the longer he gropes about, and the more determined he is not to be foiled, the greater will be his chance of failure. "*Nullum numen abest si sit prudentia,*" should be his motto, and the sooner he acts upon it, by withdrawing his instrument, the better. But suppose, on the contrary, that none of these difficulties have been encountered; that the stone has been readily felt, without giving the patient much pain; that the instrument may be readily manœuvred in the bladder, then the next object in view will be to loosen the blades of the lithotripteur, by turning the tripod or handle of the vice, cautiously opening the claws by pushing back the male rod, and then endeavouring by short, sudden, but gentle lateral movements, with the heel of the instrument, on the floor of the bladder, to pass the gutter of the female rod beneath the stone, the situation of which, with respect to this part of the instrument, may be readily ascertained by depressing occasionally the male rod. It is astonishing with what facility, in some cases, the stone, by a slight lateral movement, may be shuffled into the jaws of the lithotripteur, so much so that the first attempt, sometimes, in the hands of a dexterous surgeon, will suffice for this part of the operation. Having secured the stone within the grasp of the forceps by quickly but gently pushing downwards the male rod, the surgeon next turns the tripod with one hand while he steadies the instrument with the other, and gradually strains upon the stone until he feels or hears it crack beneath the pressure of the serrated claws in which it is embraced. Soft and friable stones give way quickly under moderate pressure, and where no strain is perceived upon the tripod; hard and flinty stones, on the contrary, crack with a sudden jar or snap, and splitting asunder quickly, make a report like the distant smack of a whip, while the tripod is suddenly loosened, but generally resumes its hold upon the remaining portion of the calculus. There are some calculi, however, too hard and solid to be thus broken by graduated pressure; and if the surgeon, not aware of this, and possessing but little mechanical tact or skill, should apply inordinate force to his screw, the beak of the male rod 'might be broken off, or so sprung

as to prevent it from being disengaged readily from the stone. In such a case, then, instead of straining upon his instrument, in the vain hope of smashing the stone, the proper course to pursue is to loosen the tripod, and by gentle taps with a hammer upon the bowl on the summit of the male rod, to fracture the stone or quarry it. But let it not be supposed that such an exploit can be safely performed while the lithotripteur is merely held in the operator's hand. The percussion, in that case, would necessarily extend to the walls of the bladder, and might be followed by disastrous effects. Fortunately, these are readily guarded against by a *vice* (lined with lead, adapted to the shoulder of the female rod, and held by the surgeon and assistants,) admirably calculated, in every respect, to fulfil the purpose for which it was designed. Having broken the stone, either by graduated pressure or by percussion, the surgeon next closes his instrument and opens it repeatedly, while, at the same time, he moves it quickly from side to side to crush and wash out any small fragments that may project from the edges of the groove, and might wound or lacerate the neck of the bladder and urethra in the act of withdrawing the instrument from that viscus. If he has reason to believe that, by these manœuvres, the fragments have not been gotten rid of, he may generally accomplish his purpose completely by slight strokes of the hammer in the manner already directed. After this, the sooner the lithotripteur is removed from the bladder the better, and the shorter the time the surgeon has taken to perform the operation, the greater will be the chance of success. In general, by the time the operation is completed, there is an urgent desire, on the part of the patient, to let off his urine; but it seldom happens that large fragments come away with the first passage of the urine. In general, only a few small pieces are observed, together with a little sand, and now and then a few drops of blood, produced by the pressure of the shaft or fulcrum of the instrument on the neck of the bladder. It is not desirable, indeed, that the fragments should come away until the soreness of the urethra has passed off, and, fortunately, most patients have the facility of retaining them by laying on their side, and not emptying the bladder completely at each time of evacuating, but always retaining a small portion of urine. In a day or two, however, they begin to present themselves at the neck of the bladder, where they remain a short time, exciting more or less unpleasant feeling, and are then suddenly carried forward and bolted out before the patient is aware of it. In this way, one after another, fragments may pass in rapid succession, and in a few hours the patient has been able to make a large collection of them, the soreness gradually passes away,

and after the lapse of five or six days, is prepared to undergo another operation.

Such, however, is not the invariable result of an operation for lithotripsy, for although the surgeon may have been abundantly successful in breaking up the stone, and may have been extremely rapid and dexterous in his operation, and communicated as little irritation as possible, still the bladder is very prone to resent any offence, even the slightest, that may have been offered to it, and will vent its displeasure on the surrounding and even distant parts. Hence a few hours after the operation, or, in some cases, in a day or two, a chill is induced, followed by fever, profuse perspiration, spasms of the bladder, &c. or these symptoms may have been brought about by the lodgment of a fragment in the urethra. The best course to be pursued, I think, in this state of things, is to bleed the patient as soon as the fever has come on, to administer an opiate injection occasionally, to restrict the diet within the closest bounds, and not to permit the patient to get out of bed—a rule, indeed, which the lithotriptist would do well to observe after each operation, whether any bad symptoms show themselves or not. If a fragment has lodged about the neck of the bladder, and seems disposed neither to retire nor advance, the best plan is to push it back into the bladder by a large catheter or sound; if it has advanced within a few inches or a short distance of the external orifice of the urethra, then it may be got away generally by a bent probe, by a pair of urethra forceps, or, still better, by the curette of Leroy—a most ingenious little instrument, admirably adapted to this and many other purposes.

When the irritation has entirely passed away, which generally happens in four or five days, or, at farthest, a week, the surgeon renews his attempts to seize and destroy the stone, in the manner already described; but, as each operation generally becomes more difficult in proportion as the stone is diminished in size, owing to the greater difficulty of feeling a small foreign body than a large one, it will be proper to detail certain expedients which may be resorted to advantageously in most instances. The course to pursue, then, under such circumstances, is to introduce the lithotripteur, and having reached the fundus of the bladder, to withdraw the male rod for half an inch and upwards, and fish about from side to side, or in various directions, with the groove of the female rod, and, by so doing, the operator will be very likely to collect one or more fragments, the presence of which can be readily ascertained by closing occasionally the jaws of the instrument, crushing the fragments, and then again expanding and making further search, until all the pieces that happen to fall

within the gutter of the lithotripteur are completely broken up or pul-
verized, and may afterwards be thrown off by the action of the blad-
der.   It is a leading principle indeed, now, with all lithotriptists, to
reduce the fragments by successive attempts, to the smallest compass,
so as to facilitate their passing off quickly, and with the least possible
risk of irritating, or tearing the urethra; and fortunately the bladder,
in most instances, seems to understand the surgeon's views, and is
abundantly disposed to second them.   But, in other cases, old and
debilitated patients, especially, there is sometimes so little power in
the bladder, that it does not contract sufficiently to expel the foreign
bodies which may have been broken up into numerous pieces, and, by
accumulating, may still keep up irritation, or in time, by the con-
glomeration and matting together of particles, lay the foundation of
another stone.   This was one of the strongest objections, some three
or four years since, both to lithotrity and lithotripsy, so much so that
it was customary at that period to recommend *lithotomy* in patients
thus situated, rather than either of the other operations.   By the in-
genuity of Heurteloup, however, this difficulty has been in a mea-
sure obviated, by means of the *"evacuating sound,"* an instrument
of peculiar construction, and exceedingly well calculated to collect
and bring away, without annoyance to the bladder and urethra, frag-
ments of considerable size, as well as the sand, or debris which accu-
mulates in such quantities in the hollows and certain rendezvous met
with in most bladders.   But, fortunately, there is another circum-
stance independently of the advantage to be derived from the instru-
ment referred to, which may serve to console patients in whom the
power of the bladder to expel the urine with its accustomed force is
diminished or destroyed—that there is reason to believe, in certain
cases, that soft and friable stones are susceptible of *solution* in the
urine, and are removed in the shape of sand or mud, mixed with
slime and other matters. Heurteloup speaks of cases of the kind, and
one of this description, I am very sure, has occurred in my own prac-
tice.

   It will be remembered, I trust, that I do not profess, in this com-
munication, to give more than a sketch or outline of *lithotripsy*, illus-
trated by a few cases; and if what I have said shall answer the pur-
pose of drawing the attention of the American surgeon to the opera-
tion, of clearing up the doubts of some and confirming the sentiments
of others, my labour will not be in vain.   It has been said, and is even
now often reiterated that I have *decried* the operation. This is a great
mistake.   I have never condemned *lithotripsy;* but have always
doubted of the perfect success of *"lithotrity."*   In my text book and

in lectures, I have spoken of the original idea of destroying, by instruments, stone in the bladder, as a most ingenious and beautiful one—have said that the time would come, when such instruments would be so *modified* and *improved,* as to deserve the highest commendation, and that the operation would become an established one, though it would never supersede, in toto, *lithotomy.* Have not my predictions been verified? Have not the most disastrous consequences followed *lithotrity,* even in the hands of *Civiale himself,* the prince of lithotritists, whose magic powers are still unequalled and can never be surpassed in his *particular line,* and in the management of *his own tools?* Is not *lithotrity* now spoken of in Europe, constantly and without reserve, as the *"old method," the "ancient operation?"* That more or less of the same difficulty, though never, I trust, to the same extent, will attend *lithotripsy,* I have no doubt; that patients will be subjected to the operation who are unfit for it; that mistakes will be committed by the inexperienced and adventurous; that the most wary and prudent operators will be baffled, and foiled, and deceived in their expectations, partly from perverse and obstinate patients, partly from neglect of those about them, and partly from the complicated nature of cases which no human wisdom could foresee, I am prepared to believe and admit. But "Quia non omnes convalescunt idcirco nulla igitur est medicina," is a maxim of sound sense and truth, which should never be lost sight of—which will apply, now and then, to every operation in surgery, and to every medical case, from the most complicated to the most simple.

Before proceeding to detail the cases of lithotripsy in which I have been engaged, and from which most of the foregoing remarks have been derived, I propose to make a few comments upon the instrument of *Jacobson,* and to compare it with that of *Heurteloup;* in so doing, however, I beg leave to declare that it is not my intention to unfurl the banner of opposition on the one hand, or to be led captive on the other, but "to render unto Cæsar the things which are Cæsar's." One advantage, at least, an American possesses over Europeans, amidst their controversies concerning inventions, improvements, discoveries—that he can be impartial. Of Heurteloup, *personally,* I know nothing; of Jacobson, nothing; of French and English lithotriptists and anti-lithotriptists, their politics, parties and squabbles and academical debates, I know and care, if possible, still less. With their *instruments* I am well acquainted, and equally well disposed to give them all the credit, in my poor judgment, they deserve.

Jacobson's instrument is a most ingenious and beautiful one; extremely simple; remarkably strong; not too bulky; of the very best

form for easy introduction; readily withdrawn if any part of it should give way; better adapted, as regards facility, than any other instrument to *catch* and *inclose* a *small* stone, when seized, of great power to break it; and, upon the whole, admirably calculated, *apparently,* for success.   But, withal, it is a dangerous weapon; for the natural tendency of the closing of the loop, or zigzag chain, which binds upon the stone, in the act of demolishing it, is to drag the folds about the neck of the bladder and prostate into the embrace of the steel rods, where they emerge from the mouth of the cannula, and to *pinch* them to excess.   Nor is this all—the irregular loop, full of small angularities; the numerous joints, and rivets, and dovetails; the prominent knots, and depressions, about each hinge; the inaccuracy and uncertainty, and lateral irregularity of the closing of the different joints; the long line of loop, running from stem to stern along the perpendicular edges which frown from the serrated flat lining the interior of the chain; so well calculated to rake and harrow the plain surface of the bladder; so unadapted to descend into the nooks and hollows; to pass beneath the overhanging bank of the prostate; to enter into a cyst, or between the folds of a contracted bladder—together with the impossibility of enclosing a *large* stone; of the difficulty of picking up fragments after the stone has been quarried and of applying the *principle of percussion* to the instrument, and thereby its inaptitude to *very hard stones;* to say nothing of the difficulty of fixing the stone securely, and of preventing it from shifting from side to side of the instrument, in the act of closing the chain; which want of steadiness, in part, arises from the great length of chain which gives it a serpentine motion when dragged upon, and, in part, from the chain not *hugging* the stone *closely* over its entire surface, but standing off, (particularly if the stone is flat, as most stones are) at every part of the loop corresponding to a point in the chain; and, lastly, the complaint of most patients when the loop is expanded in the bladder, and an attempt made to scoop the stone within the bow of the instrument—a complaint so characteristic, that when I passed it upon one occasion the patient cried out, without knowing the conformation of the instrument, that "I had put a basket into his bladder."   These objections are the result of my own observation; I have not hunted up European publications to cull them from; I have seen, indeed, but one publication on this particular subject, and from that I will venture to make an extract, as it seems to confirm the view I have taken:—"La découverte de cette instrument, était precieuse lorsque celui de M. Heurteloup n'existait pas, car on pouvait commencer avec l'instrument à trois branches et continuer avec le brise pierre

de M. Jacobson: mais a présent il est devenu absolument inutile:
l' instrument de M. Heurteloup le remplace toujours: et j'ai prouve,
dans le chapitre précedént, que le perceuteur peut s'appliquer, avec
le moins de dangers, et le plus de facilité possible, dans tous le cas
où la lithotritie est practicable; c'est pourquoi il est evident que
l' instrument de M. Heurteloup est preferable à tous les autres, et
que M. Velpeau a eu tort de choisir l' instrument de Jacobson comme
le meilleur. La preuve la plus manifeste de la verité de mes paro-
les est que cet instrument n'est employe par aucun lithotriptiste
connu."*—Not to be unjust, however, to Jacobson's instrument,
(whatever my own impressions of it, or those of others, may be) it is
but fair to state, that it has been employed successfully in this
country in several cases by Dr. Jacob Randolph and others; and the
inference, therefore, is plain that it must be an instrument of some
merit,—and this I am not disposed to deny, whilst, at the same time,
I am inclined strenuously to contend that the *lithotripteur* of Heurte-
loup is a better one—and, for the following reasons: 1st. That in ad-
dition to its working upon the principle of *graduated pressure,* it
combines the important power of *concussion;* 2nd. That it does not
give the patient so much pain, either during the introduction or whilst
manœuvred in the bladder; 3d. That it can grasp a larger stone;
4th. That its beak can descend behind the prostate and enter every
corner or pocket of the bladder; 5th. That it is extremely well adapt-
ed to seek out and pick up fragments; 6th. That it is so constructed
as to render it almost impossible to *pinch* the bladder, were the sur-
geon even disposed so to do; 7th. That although not so strong,
perhaps, as Jacobson's chain, that it would be next to impossible,
when well tempered, to break it; 8th. That the only inconvenience I
have ever experienced from it, is the liability of the groove, in the
female rod, to become clogged with sand and small fragments, so as
to give the patient pain in withdrawing the instrument—that this,
however, is easily obviated, after a little practice, by opening the
forceps, and by slight lateral movements, washing out the fragments,
and afterwards crushing the remainder by a few taps of the hammer.
One remark, however, may be made in conclusion, and should not be
lost sight of, as regards the employment of instruments in general—
that almost every surgeon, when once accustomed to a particular in-
strument, even although that instrument may be an awkward and
ungainly one, will perform better with it than another surgeon equal-
ly skilled but unaccustomed to it.   From numerous sources entitled

* Sur La Lithotripsie et la Taille par M. P. Doubovitzki: Paris, 1835.
   30*

to credit, and particularly from my young friend, Dr. E. Peace, (who has just returned from Paris, and has been attending particularly to lithotripsy) I learn that the modifications of Heurteloup's and other instruments are almost endless, and that there is scarcely a lithotritist but has some instrument peculiar to himself. Hence, probably, the great variety of opinions on the subject, and the endless and bitter controversies which have been for some time past, and still are, waging among them. *Time*, the greater instructor in all things, will be able "tantas componere lites." Many of the foregoing remarks will be illustrated by the following cases.

CASE I.—Dr. F———, of North Carolina, consulted me on his case in June, 1835, which, in several respects, was a distressing one. He had submitted to lithotomy some months before I saw him; and although the operation had been performed skilfully, the wound never healed, but remained fistulous, and in a little time the stone made its appearance again, and seemed to be enlarging with rapidity. He had been making attempts, I found, to crush it, by means of Jacobson's instrument, but had never succeeded (owing to the severe pain and spasms which followed each trial) in seizing it, or in detaching fragments. I proposed the employment of *Heurteloup's lithotripteur*, and explained to him its mechanism, with which he was so much pleased as to consent to its introduction a day or two after. So extremely sensitive, however, was the bladder, and so great his apprehension, that he would not suffer the instrument to be introduced except in the slowest and most deliberate manner, consuming five or six minutes, frequently stopping its progress with his own hands, and, in fact, almost performing the operation himself. Having at last reached the bladder and felt the stone, I expanded the forceps to an inch and upwards in width, seized the stone and broke off a large piece of it. All this was effected so quickly, according to his ideas of time, as greatly to delight him, and determined him to submit to further efforts to obtain relief. Accordingly, a few days afterwards, another trial took place; and although the operation was performed partly by me and partly by himself, it proved equally successful as the first attempt, and encouraged him to proceed with other trials, at one of which Dr. Hays and other gentlemen were present. After each operation, however, there was always more or less chill and fever; and as the patient's constitution had been greatly impaired by long suffering previous to my having seen him, I was almost afraid, after each trial, to touch him again. In proportion, however, as the fragments were gotten away (though sometimes by sticking in the urethra they gave him great uneasiness,) his constitution continued

to improve so rapidly as to enable us to renew attempts with greater frequency, but always with more or less success. Towards the end of July, however, I was obliged to leave town, and to take my instruments with me, which put a stop to further proceedings for several weeks. During my absence, the patient had procured an imitation of Heurteloup's lithotripteur, and assisted by some of his friends, particularly by Dr. Rose, had succeeded in removing other fragments. From that period, during the whole of the last winter, he was engaged in operating on himself, with occasional assistance from myself and Dr. Rose, and was enabled, by great industry and perseverance, to make in the spring a collection of fragments and sand amounting to 3 ʒ 12 grs. in weight. By this time his health was so much improved as to enable him to return to Carolina. Such is the tendency, however, in his particular case, to generate calculous matter, that it is very questionable whether he will not be liable, always, to its formation, unless by change of diet, water, and climate, he can effect such a change in his constitution as to get rid of the diathesis—a result earnestly wished for by his numerous friends, who sincerely sympathize with him in his great distress and sufferings.

CASE II.—At the request of Dr. Tyndale, a most intelligent and respectable practitioner, whom I had the pleasure of meeting during a visit of a few days at the White Sulphur Springs, in Virginia, in the summer of 1835, I saw, in consultation with him, W. T., Esq., of Pittsylvania. Believing, from the symptoms, that the patient had stone in the bladder, I was induced to sound him, and discovered a calculus of considerable size, under which he had laboured, in all probability, for several years. From this and other causes, his health had been long impaired and his constitution irritable. In some respects, however, his case appeared to be adapted to *lithotripsy,* but totally unfit for *lithotomy.* Having my instruments with me, and wishing to ascertain whether the stone was hard or soft, I prevailed on Mr. T. to submit to the introduction of the lithotripteur of Heurteloup; and although the bladder had not been fully distended with water, or the patient prepared by diet for the operation, I succeeded in detaching small portions of the stone, which were brought away in the gutter of the instrument, and which proved to be soft and mortar-like, but full of sharp, needle-like points. A slight chill and fever followed this attempt; from which, however, after a few days, no inconvenience resulted. I then took leave of the patient, and advised him to repair to Philadelphia the ensuing autumn and undergo the operation of *lithotripsy,* enjoining upon him at the same time the necessity of regular preparation, by appropriate diet, for several weeks

previous to leaving home. Shortly after my departure from the Springs, Mr. T., from eating boiled corn and other unwholesome articles of food, had a violent attack of cholera morbus, and with great difficulty recovered from it. From that period his constitution became enfeebled, and he suffered more than ever from the disease in his bladder, passing occasionally lumps of sabulous matter, like mortar in consistence, but full of so many sharp crystallized points as to create great pain and soreness in passing them. During the whole winter he remained at home, unable to set out for Philadelphia; but towards the spring, finding his health somewhat improved, made the attempt, and arrived, after encountering bad roads and very unfavourable weather, on the 27th of April, 1836, exhibiting great marks of fatigue and long suffering, and very much changed in appearance since the period I had first seen him. Finding that Mr. T. had been making no preparation in the way of regimen to facilitate the operation of *lithotripsy*, and to guard against irritation and inflammation, I placed him at once in lodgings, as near to my own residence as possible, in order that I might watch him closely and be with him at a moment's warning in case of difficulty, impressing at the same time upon his landlord the necessity of the strictest attention to diet, &c. Having consumed nearly a month in subjecting him to dietetic discipline, and dilating the urethra by gum elastic catheters, I commenced regularly, May 24th, assisted by Dr. Mutter, with the operation of *lithotripsy*, introduced Heurteloup's instrument, touched the stone, but could not seize it, owing to the small quantity of urine contained in the bladder, but which, notwithstanding, the patient informed me, had been collecting for several hours. From this operation no inconvenience followed, and the patient was ready on the 26th for another trial. At this operation also Dr. M. assisted. The *lithotripteur* being introduced, the stone could not be felt, owing to the small quantity of urine contained in the bladder. To obviate this difficulty I withdrew the instrument, injected the bladder with tepid water, again introduced the *lithotripteur*, seized a portion of the stone, which readily crumbled beneath the pressure exerted upon it, and brought away small mortar-like fragments. Other pieces of similar appearance were discharged along with the urine in the course of the day. To facilitate the seizure of the stone upon this occasion, I found it necessary to introduce a finger into the rectum, and raise the stone from the fundus of the bladder, or the bed, or cyst, into which it had been accustomed, as I had reason to believe, to lurk. Four hours after the operation the patient complained of having a slight chill; this continued for an hour, and was followed by a little fever. These symptoms I thought might

be attributed in part to the weather being uncommonly cold, raw and damp, from the continued prevalence for some time of easterly winds. Towards night the constitutional symptoms passed away, and the only complaint the patient made was of unusual soreness along the urethra, which I accounted for by the passage of the mortar-like substance, armed with its crystallized points.

Upon visiting the patient next day, (27th,) I found him complaining of desire to evacuate urine every twenty minutes, and of a discharge of ropy mucus of yellowish tint. These symptoms continued throughout the day, more or less, and were unabated on the next day (28th,) which induced me to order the hip bath and 30 drops of black drop, and a weak opiate injection per anum. Under the influence of these, Mr. T. slept soundly until 3 o'clock, P. M. During the afternoon, however, more or less of drowsiness continued, and the desire to make water had nearly ceased, and so remained throughout the night, but, in the morning (29th,) returned with its former urgency. To combat this as soon as possible, the opium was again resorted to, both in form of injection and black drop, internally. In the afternoon, also, an aloetic pill was administered, and a blister applied to the sacrum. Under the influence of these the patient passed a good night, almost undisturbed by spasms. On the next morning, (30th,) the desire to pass urine, accompanied by spasms, returned and continued all day, at intervals of fifteen or twenty minutes. At five o'clock, P. M., a suppository, consisting of three grains of cicuta, and two of opium, was administered. At eight o'clock, P. M., the pulse, for the first time, became full and bounding, owing to two much nourishment (consisting chiefly of raw oysters) having been taken, and to the room being filled with the gas of anthracite coal, which is as deleterious in its operation as that of charcoal. To remove these symptoms, the patient was bled to ten ounces. Notwithstanding the bleeding, the patient passed a restless night, and on the next morning (31st) the spasms returned with more violence than ever. In the course of the forenoon, a laxative enema was administered two or three times, and produced copious evacuations. At 3 o'clock, P. M., it became necessary, on account of frequency of alvine discharges, to administer an opiate enema. This checked the diarrhœa and spasms for the night, but in the morning (June 1st) the spasms returned again, and continued with more or less violence throughout the day. Various remedies, besides the opiates and other means detailed, were tried ineffectually, and, although the symptoms varied from time to time, the spasms and pain in passing urine were the prominent ones, and came on at last with such violence, and at such short intervals, as to

prostrate the patient beyond the possibility of recovery. Two days afterwards (June 3d) he died. Permission could not be obtained to examine the bladder and its relations, a circumstance much to be regretted, especially as lithotripsy is still in its infancy and requires all the light that can be shed upon it. But, although denied the opportunity of examining the condition of the bladder, and of ascertaining *positively* the cause of death, there are several circumstances connected with the case exceedingly well calculated to unravel a part of the mystery. From the history of it I have detailed, it will be seen that extraordinary pains were taken to prepare the patient for the operation, by restricting his diet in every possible way—by confining him to his room, and by the use of instruments calculated to enlarge the urethra and accustom it afterwards to those to be employed for the destruction of the stone. Unfortunately, however, the interesting sufferer was not aware of his own danger, and with the best possible intentions, in deceiving me in what he supposed to be little matters of no moment, he deceived himself, and led to results which I am very confident would not otherwise have followed. Instead, then, of attending *strictly* to the regimen I had prescribed, (as I have since ascertained from the best authority,) instead of living entirely on barley water, black tea, dry bread, and rice, and avoiding altogether animal food during the entire month of preparation preceding the operation, his meals were taken with the family with which he lived, and every article on the table he happened to fancy freely indulged in. This course, together with undue exercise, either in his room or abroad in the streets, was calculated, as I am sure every experienced surgeon will admit, to produce the worst effects, especially in a patient advanced in years, of irritable constitution—one who had long suffered from violent attacks of other diseases—whose bladder had been thickened and contracted by the lodgment, for years, of a large stone—whose kidneys, in all probability, were also diseased, besides other organs, more or less important in the animal economy. I trust it will not be supposed that I mention these facts by way of exculpation or for the purpose of casting a veil over any errors I may have committed. Those who know me, I think, will acquit me of such intentions. Nor would I have it supposed that I am casting unjust and unnecessary censure upon the respectable patient for whom I felt the highest personal regard and respect, and in whose case I took the most sincere and lively interest. My only motive in detailing such circumstances, is the public good, and for the benefit of those who may be now engaged in treating similar cases, or who may do so hereafter; for there is nothing more likely, than that patients similarly situated

with Mr. T., (who, from having always been accustomed to plentiful and luxurious living—to all the comforts and delicacies of life,) will not voluntarily refrain from such enjoyments, especially if they can persuade themselves that the indulgence in them cannot interfere, materially, with their complaints and the mode of treating them.

CASE III. At the request of my friend, Dr. Joseph G. Nancrede, I saw, in consultation with him, in April, last, Mr. Charles O'H., 63 years of age, who, for the last few years, had led a sedentary life, and complained, latterly, of symptoms of stone in the bladder. Upon sounding the patient, a stone of large size was distinctly felt, both by Dr. Nancrede and myself, and the case pronounced, in every respect, suitable for *lithotripsy.* The patient having consented to the operation, was accordingly prepared for it, by being placed on a diet of rice, barley water, and black tea; very little time, however, was required for this purpose, inasmuch as he had abstained for some time previously, from animal food, by advice of Dr. Nancrede.

On the 1st of May, 1836, I commenced the operation in presence of Dr. Nancrede and Dr. J. Y. Hollingsworth of Maryland, by introducing a large silver catheter, and injecting the bladder with tepid water, until the patient complained of uneasiness from a sense of distension. The catheter was then withdrawn, and the *lithotripteur* of *Heurteloup* introduced, but the stone not felt until the patient turned a little on his side; I then perceived it to roll over the instrument heavily, which convinced me, at once, that it was large. Upon placing the patient on his back, and elevating his hips with pillows, the heel of the lithotripteur came in contact with the stone, which was readily seized, (though not until I had expanded the blades of the instrument beyond an inch and a quarter,) and, by a few turns of the tripod, broken it into several large fragments, the cracking of which, as they were rent asunder, could be distinctly heard. During these manœuvres the patient remained perfectly still, experienced not the slightest uneasiness, (except that arising from over distension of the bladder,) and was conversing, cheerfully, during the whole operation, which did not exceed in duration five minutes. Upon withdrawing the *lithotripteur*, and directing the patient to stand up and evacuate his urine, numerous small fragments were discharged, besides those contained in the blades of the instrument. The catheter being again introduced, and the bladder injected, other fragments were brought away. Neither pain, chill, nor fever followed the operation; the fragments, in small quantity, continued to pass away, but not with as much rapidity as if the muscular power of the bladder had been greater.

On the 16th of May, I repeated the operation, in presence of Drs. Nancrede, Horner, and Mutter, seized, without difficulty, fragment after fragment, and fractured them, without giving the patient any pain whatever, except upon withdrawing the instrument, which, from being a little clogged with pieces of the stone, produced slight irritation at the external orifice of the urethra. No constitutional disturbance followed, and the patient, as heretofore, passed again small fragments.

May 19th, in presence of Drs. Nancrede, Hays, Mutter, Caldwell, and Bush, of Kentucky—Cabell, of Virginia, and several medical students, I renewed my attempts upon the fragments of Mr. O'H.'s stone, with the success I had hitherto met, and without the operation having been followed by a single unpleasant symptom. Fewer fragments, however, than usual, passed away, immediately after the operation, and for several succeeding days, owing to continued inactivity of the bladder, or want of muscular power.

24th, in presence of Dr. William Crump, a distinguished physician of Powhattan County, Virginia, Drs. Mutter, M'Crea, Stewardson, Pennebaker, Smith, Mr. W. Tunstall, of Virginia, and many medical students, I performed upon Mr. O'H. the operation he had, upon former occasions, undergone. Previous to commencing it, however, it was necessary to remove a fragment from the urethra, which lodged about an inch behind the glans and was easily removed by a bent probe. Several of the fragments in the bladder, notwithstanding the former operations, measured, by the graduated scale, half an inch, and even three quarters. These were distinctly heard to crack by several of the gentlemen present, under the pressure of the tripod. This, like the former operations, was followed by no unpleasant occurrence.

29th. (Drs. Nancrede, W. P. Johnson, and J. Wallace being present,) I performed lithotripsy for the fifth time on Mr. O'H., and without injecting the bladder, seized upon fragment after fragment, and instantly reduced them to pieces so small, that scarcely a particle could be caught larger than a quarter of an inch, though in the commencement of the operation, two or three fragments, exceeding half an inch in size, were met with. As usual, the patient bore the operation without a murmur. Several fragments and a good deal of debris came off in the blades of the forceps. But several days elapsed, after this operation, before any pieces of consequence were discharged with the urine. Early in the morning, however, on the 1st of June, I was sent for to remove a fragment that blocked up the urethra near the neck of the bladder, which I thought best to push back with a catheter.

June 12th. Accompanied by Drs. E. Peace and W. P. Johnston,

I again visited Mr. O'H., introduced a large silver catheter and drew
off a small portion of urine, which the patient could not expel by his
own efforts, injected the bladder with tepid water, and introduced
the lithotripteur of Heurteloup, with a view of crushing any fragments
that might remain, but, much to my surprise, found that none could
be detected; not satisfied, however, with this examination, I deter-
mined to explore the bladder with the common sound; but still with
the same result.   This was accounted for by examination of the bot-
tle containing the discharged pieces, which had accumulated since the
last operation, (May 29th,) so considerably, as to add, largely, to the
portions previously expelled, and which taken, collectively, from first
to last would have been sufficient to form a stone of the size of a wal-
nut, and one much larger might have been formed, if the patient had
taken pains to collect all the pieces—but owing to inaccuracy in this
respect, a great deal of sand and numerous fragments, there is reason
to believe, must have been lost.   As usual, no inconvenience resulted
from this examination; but, four days afterwards, (June 16th,) I was
sent for, early in the morning, to visit the patient, who felt alarmed at
the idea of a fragment being lodged in the urethra; such, however, upon
passing the instrument, I could not discover, and, therefore, concluded
that irritation had been created by the patient having changed his
diet too suddenly, after having been told that he was nearly rid of his
calculus.   Upon this occasion, indeed, I found him over a large bowl
of coffee, and surrounded by piles of bread and butter.   By directing
him to resume his tea and barley water, all uneasiness about the blad-
der and urethra disappeared in a few hours.   On the 20th of June, I
paid him another visit, and found him complaining of slight tenderness
in one testicle and a prickling sensation in the urethra. Suspecting the
lodgment of a fragment, I introduced a pair of small forceps, and ex-
tracted a piece about a quarter of an inch in length.

In the presence of my friend, Dr. Norcom, an eminent physician of
North Carolina, Dr. Chase, Dr. Nancrede, and Mr. Schively, I repeated
the operation to-day, (June 29,) on C.O'H., by injecting the bladder, in-
troducing the lithotripteur, and searching for the stone; but, after mov-
ing the instrument in every direction, within the bladder, I could not
touch a fragment. The lithotripteur was withdrawn, and the patient
rose and passed his urine. It then occurred to me, that by sounding the
patient with the bladder *empty*, I might be able to feel the stone and
crush it. Upon so doing, accordingly, a fragment about half an inch
thick, was distinctly felt, and almost immediately seized and demo-
lished.   Another was also caught, and as readily destroyed.   In the
groove of the instrument, as usual, portions of mortar-like matter

were found. Fully convinced from the accurate examinations made at different periods that the fragment destroyed to-day was the only one the bladder contained, I feel very confident that the patient will be entirely rid of his complaint, as soon as the pieces come away, which will probably take place in a few days.

CASE IV. H. M., of Virginia, 34 years of age, arrived in Philadelphia on the 29th of April, 1836, and consulted me on his case, which, in some points of view, was a singular one. According to the patient's statement, a persimmon seed had been introduced into his urethra, and found its way into the bladder, where, in all probability, it had served as a nucleus for a stone; for, in a short time after, symptoms resembling those of stone, were manifested. Upon sounding the patient, I discovered a calculus of small size, and (judging from the feel communicated to the sound) of soft consistence. Anxious to undergo *lithotripsy*, or lithotomy if I preferred it, he was placed, at once, upon appropriate diet, directed to drink plentifully of diluents, and while pursuing this course, had the urethra dilated with bougies, catheters, &c. After persevering in this system for three weeks, the patient became exceedingly desirous of submitting to the operation itself, and, as he possessed considerable mechanical skill and ingenuity, and had examined with great curiosity the instruments for lithotripsy, expressed a decided preference for that of *Jacobson*. To gratify him, therefore, it was employed, and, with the utmost caution and gentleness, attempts made to seize the stone; but, so great was the irritation, and so severe the spasmodic action of the bladder, induced by its presence, that it appeared to me it would have been forcibly expelled from that viscus. I was obliged, therefore, to withdraw the instrument, after the lapse of a few seconds. This attempt was followed by severe chill and fever, which confined the patient for several days.

On the 26th of May, assisted by Dr. Mutter, I commenced, regularly, with Mr. M., and, at his request, again employed the instrument of *Jacobson*, notwithstanding the suffering it had previously occasioned him. Accordingly, it was introduced, but created so much pain and inconvenience that he peremptorily demanded its removal. Upon withdrawing the instrument, the urine which had been retained three or four hours, escaped, and rendered it necessary, before proceeding further, to inject the bladder with tepid water. After this, the *lithotripteur of Heurteloup* was introduced, and the stone almost immediately seized and crushed under the pressure of the tripod or screw—creating a sound similar to that of chalk, when broken between the fingers. In the groove of the instrument,

numerous small fragments were found, and, in course of the day, several large pieces discharged along with the urine, some of which were encrusted with a dark brown or black skin, similar to the husk of a persimmon. The stone, as I had predicted, was of rather soft consistence, and apparently composed of the ammoniaco-magnesian phosphate. Before the completion of the operation, the patient suffered a good deal from pain and spasm of the bladder, but these soon ceased, and were not followed, as in the former attempts, by chill and fever. Two days (May 28th) after the operation, however, the patient complained of great pain in the urethra, but was suddenly relieved by the discharge of a large fragment, in the centre of which was a hollow or depression, corresponding in shape and size with a persimmon seed.

On the 29th, another fragment was discharged, but, as no other made its appearance from that period until the 6th of June, I introduced, on that day, in the presence of Mr. Saltmarsh, the instrument of *Heurteloup*, and used it as a sound, but could not detect any portion of stone. However, the next day, (June 7th,) a fragment, half an inch long, and hollowed out in the centre, passed off with the urine. At the same time, a portion of black skin resembling the rind of a persimmon was thrown off. On the 9th of June, the lithotripteur was introduced, but without detecting a fragment. The same operation was repeated four days after (June 13th) in presence of Drs. Johnson and Peace, but with no better success. Having experienced no inconvenience from the two last examinations, another was made (June 17th) in presence of Mr. Saltmarsh, and a fragment about the size of a bean felt at the fundus of the bladder, which was readily caught and crushed. In the course of the day, three oblong fragments, a quarter of an inch thick, passed away with the urine. With the view of ascertaining whether other fragments still remained in the bladder, the *lithotripteur* was again introduced, (June 20th, Mr. Saltmarsh being present,) but nothing could be felt. Soon after this examination, the patient changed a pair of cloth pantaloons for thin ones, and walked about the streets for some time, and, when he returned to his lodgings, was seized with chill, followed by high fever, which rendered it necessary to bleed him and restrict his diet more than ever. Since that period he has been confined to his room with sore throat, cold, and more or less fever, which, for the present, prevent the operations from being continued. That any fragment of stone remains in the bladder, seems to me extremely doubtful; it is more than probable, however, that the *persimmon seed* is still there, inasmuch as no portion of the *substance* of the seed has been yet dis-

covered, and, as he complains, after passing urine, of something presenting itself at the neck of the bladder. Whether the *lithotriptcur* will be able to destroy the texture of such a substance, (which closely resembles softened horn,) I am at a loss to say. In truth, until I saw the pieces of black skin discharged along with the fragments, I did not believe that such a foreign body had found its way to the bladder, and had placed the patient's account of the mode of its getting there to the effect of imagination.

On the 28th of June, the patient having recovered, in a great measure, from the effect of his cold, another examination was made with the *lithotripteur*, but smaller in the shaft and shorter in the beak than the one commonly employed. This did not enter with facility, but met with considerable obstruction at the neck of the bladder; it finally started forward, very suddenly, and was completely introduced. Some hours after, the patient discharged, along with the urine, more or less venous blood, the result, no doubt, of the pressure of the short beaked instrument upon the prostate and neck of the bladder. To-day (June 29th) the urine is colourless and the patient free from soreness in the urethra, and, as the weather is becoming warm and oppressive, and he complains of being weakened and reduced, I have advised him to postpone further operations for the present, and retire for a few weeks to the country.

CASE V.—P. P., Esq., about 48 years of age, of literary and sedentary habits, troubled more or less with dyspepsia, came to Philadelphia last fall, by advice of my friend, Dr. Thomas, a distinguished physician of Westchester, to consult me about symptoms resembling those of stone in the bladder. His engagements, however, at that period, were such as to prevent him from being sounded, and from remaining in town. About the middle of May, 1836, he returned to Philadelphia, and upon sounding him I discovered a small stone, and concluded, from its ringing distinctly when struck by the sound, that it was a hard one. Believing the case adapted to *lithotripsy,* I advised the operation, placed him in suitable lodgings, and commenced a *system of diet*, which, indeed, he himself had been observing, in a measure, for some time before, having anticipated the necessity of such a course. After using, also, gum elastic and other instruments to familiarize the urethra with such guests, I commenced the regular operation (May 21,) by introducing *Jacobson's* instrument, which, however, gave excessive pain, brought away blood, created severe chill and fever, and rendered the patient so ill as to induce me to advise him to return to the country after the symptoms had abated, and remain until he recovered sufficiently to undergo a trial with

another instrument. Accordingly, he left town on the 26th of May, and returned on the 4th of June, improved in appearance and health.

On the 8th of June, assisted by Dr. Mutter, I introduced the *lithotripteur* of Heurteloup; and after searching for the stone a few seconds, discovered, seized, and fractured it, as it lay in the fundus of the bladder on its right side. During the turning of the screw, the fragments could be heard cracking distinctly, the report being very sharp and sudden, like that of a whip. Upon removing the instrument, numerous small fragments were found in its claw and gutter, of a yellowish or gamboge tint, intermixed with harder portions of dark brown fragments; which, from appearance, I should suppose were made up of oxalate of lime and lithic acid. During the operation the patient scarcely complained of pain, and remarked that the uneasiness arose more from sense of distension, from having retained his urine two or three hours previous to the operation, than from the instrument. Neither chill nor fever followed this operation; and the next day sand and several small fragments were discharged with the urine.

On the 14*th of June*, the patient felt well enough for another trial, which was accordingly made, and with the same happy result—the stone having been seized instantly and crushed with an audible noise. Numerous fragments came away in the groove of the *lithotripteur*, and the next day three larger than a pea were discharged along with the urine—the whole collection, from the two operations, being sufficient, if put together, to form a stone the size of an almond. During the operation, the patient did not complain of pain or spasm of the bladder; more or less of which last he had usually experienced while the instruments remained in that organ.

On the 17th, I visited Mr. P. again, (accompanied by Drs. Peace, Chase and Johnston) with the view of searching for fragments; but the patient not having allowed the urine to collect in sufficient quantities to seize them with safety, I declined the operation, but merely used the *lithotripteur* as a sound, to determine the size and situation of the pieces.

On the 22nd of June, in presence of Mr. Saltmarsh, I made another examination, but without being able to detect a fragment, and repeated the effort on the 25th and 29th, but with no better success. That there is still a fragment in the bladder, however, is rendered probable by the circumstance of the patient feeling an obstruction, occasionally, about the neck of the bladder after walking or remaining for some time in the erect position, an obstruction sufficient to impede the flow of urine for a moment, or until removed by a change of position. But the patient's engagements are such as to prevent him from staying

31*

longer in town at present; and as he is desirous of recovering, also, from the effects of his restricted system of living, he returns to his farm, and, after harvest, intends to have the bladder still further explored.

In examining the details of the above cases, it will be seen that I do not report them as perfect *cures*, although they are, I think, in a fair way to become so. They are of too recent occurrence, moreover, (so far as the operation is concerned) to expect that I should have been able to pronounce *decisively* as to the result. But I prefer, at any rate, giving an account of them at this time, because it will be expected that I should notice them hereafter, and state, for the benefit of the profession, whether they have been cured or not, or whether there has been a return of the complaint. It has been objected, indeed, to the operation of *lithotripsy* in Europe, that many of the patients, *reported* as cured, have not in reality been so; that in several instances death has followed a few months afterwards, from long continued irritation of the bladder and urethra, or from other disease; and that when such has been the result, the operators have not deemed it incumbent upon them to disabuse the public on the subject. For my own part, I can with confidence, declare that truth, and nothing but truth, is the object of my inquiries, and of the practice in which I am now engaged; that if I find, after full trial and ample experience, *lithotripsy* unworthy of the commendation which has been bestowed upon it, I shall renounce it; that, on the contrary, if it turns out, as I ardently hope it will, to possess, in many instances, advantages over *lithotomy*, I shall advocate and support it. In conclusion I may state, that I have not introduced into this paper an account of several cases in which I have been consulted, because they were either unfit for the operation, and, therefore, abandoned, rather than risk the patient's life in the attempt, or because the patients themselves were unwilling that the trials should be continued, rendering it thereby impossible for any just inference to be drawn from them, either in favour of, or against lithotripsy.

ART. VII. *Account of a successful Operation for the cure of Artificial Anus, accomplished with the aid of a novel instrument, and performed by* J. R. LOTZ, M. D., of New Berlin, Union County, Pennsylvania, with *Observations on the Apparatus, &c., by* REYNELL COATES, M. D.

Since the first successful attempt at the cure of artificial anus, which was made by Dr. Physick in the celebrated case of John Axillius, in 1809, the operation has not been employed, to our knowledge, on this side the Atlantic, until within a few months; and though several instances occurred in the practice of the late M. Dupuytren, the methods or rather the instruments employed by him, have varied from time to time, and the number of observations yet accumulated is too small, fully to establish the superior claims of either over the plan of Dr. Physick. In this attitude of the subject, the following account of a case cannot fail to be highly interesting to surgeons. It is condensed from a letter from Dr. J. R. Lotz of Union County, to Professor Gibson, dated June 24th, 1835, which, with the newly contrived enterotome employed in the operation, has been kindly submitted to my inspection by the latter, with the assent of the author to the publication of such parts as possess general interest.

CASE. Dr. L. was called, sometime in February last, to see Mrs. ——, aged 41 years, at a distance of eight miles from his residence. The physicians in attendance informed him that their patient had laboured under strangulated hernia for a week, and that all the usual remedies for the relaxation of the stricture had been tried in vain. A tobacco enema had been given a short time before the doctor arrived, and the system of the patient was much prostrated by it, but the stricture did not yield.

The usual operation was performed as speedily as possible under the circumstances. Both the sac and the intestine were "found full of holes," and in a complete state of mortification. The stricture at the external ring was very firm. It was divided in the usual way, with the blunt pointed bistoury, guided by the grooved director, the incision being carried directly upward. *A portion of the intestine was then drawn out,* all of which looked as if it might slough off. After consultation, the mass of the mortified portion of bowel was removed by the knife, and the sound extremities of the intestine were left in the external wound, anteriorly to the ring. No dilatation of the internal ring was required or performed.

Dr. L. was requested to visit the patient again in one week after the operation. He found that the remaining dead portions of intestine had sloughed off, and the wound was in a healthy condition. Moderate pressure over the ends of the bowel was recommended, and the case was left, in other respects, to nature.

About three weeks afterward, he was requested to visit the patient with his friend Dr. Thomas Von Volzoh. They found her general health improved. The acrimony of the fœcal discharge had excoriated the groin, but no complaint was made of pain from any other cause. The long tent of Dessault was tried, but without benefit. At the next visit, the ligature of Dr. Physick was proposed, but was rejected on account of the difficulty of its application, owing to the curvature of the two portions of the bowel. *The rectal portion* "was at this time considerably protruded."

Dr. Lotz now proposed the construction of a new instrument which he thought would enable him to re-establish the continuity of the canal between the two extremities of the intestine, more readily and securely than the ligature of Dr. Physick. His invention was modelled by an ingenious gunsmith of the neighbourhood, and before proceeding to the account of the mode and result of its application, it is necessary to describe the instrument, which is highly creditable to the inventor, when his distance from professional instrument makers is considered. But it is susceptible of some simplifications which will render it even more available, and which could not be executed in time to appear with the present publication, already too long delayed.

The accompanying figure will give a very correct idea of the general form of the instrument without further description. The two fenestræ are about an inch in length, and a quarter of an inch in breadth, surrounded by a solid rim about a line in thickness. The whole instrument is about six inches in length, and from these data the other dimensions may be readily deduced.
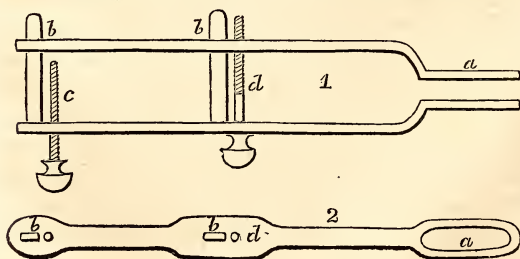

Fig. 1. A side view of the instrument of Dr. Lotz.

a, The rims of the fenestræ, seen in side view.

b b, The slides; *c,* The adjusting screw.

d, The pressure screw.

Fig. 2. A front view of the same.

a, The fenestræ; *b b,* The mortice holes for the slides.

d, The hole for the passage of the pressure screw.

They are articulated in the following manner. At the upper end (that which in forceps corresponds with the joint,) and again in the middle of one of the blades, there are attached two steel slides which play loosely through mortice holes cut in the corresponding parts of the other blade. Near each of these slides is a screw; that at the lower end passes through one blade, and simply presses on the other, acting in such a manner as to regulate the distance of the blades from each other, while that in the centre of the instrument (d) passes through both blades, approximates them, and causes the edges of the fenestra to press against each other.

The mode of application is this. The central screw being removed, the blades are entirely detached. One of them is inserted into each of the intestinal extremities in this condition, and the slider (b, b) being introduced into the mortice holes, the surgeon is assured that the fenestra are equidistant from the orifice. The central screw is now introduced, and the adjusting screw having been previously turned far enough to allow for the thickness of the double walls of intestine included between the pinching extremities, the central screw is tightened until the edges of the fenestra press firmly upon the intervening membranes. By unscrewing the adjusting screw and tightening the central one, the pressure can be increased to any requisite degree without destroying the parallel direction of the blades.

This instrument having been constructed, it was applied upon the patient in the manner described, and tightened until the circulation was supposed to be arrested in the parts included by the pinching extremities. It had been the intention of Dr. Lotz to cut out immediately the portion of intestine included between the fenestra, but as the instrument occasioned some pain and sickness, he desisted from the attempt lest he might be subsequently compelled to remove the instrument before the adhesions were completed; he left the patient with directions that the adjusting screw should be loosened and the pressure screw tightened by half a turn each day.

This operation was performed on a Thursday. On the following Sunday the doctor saw the patient again. The physician in attendance stated that the pain had subsided shortly after the last visit, and that she had continued comfortable ever after. Dr. Lotz then introduced the index finger of his left hand into the extremity of the bowel, while with his right he carried a gum lancet into the other extremity. In this way he safely excised all the portion of bowel corresponding with the fenestræ, and established a direct communication between the two ends of the intestine. He now ordered the instrument to be loosened from day to day in the same gradual manner in which it had

been previously tightened, and at his next visit, on Wednesday, he removed it altogether, and examined the result of the operation.

"I can scarcely describe to you," he says, "my gratification, when, upon examination, I found a smooth round hole about the dimensions of an inch, with the bowel, firmly adherent all around. By introducing my finger into the bowel next the stomach, I could with the greatest facility pass it through the opening, *and up through the abdominal ring.*"

Laxative enemata, a diet of rye mush, and, after a few days, more drastic enemata were prescribed, which soon caused about half the feces to pass by the rectum. A few days before the date of the letter, the doctor found her in excellent health, getting fatter daily, and discharging nearly all her feces by the natural passage. "One matter," he remarks, "operates against her yet—she is now in about her seventh month of utero-gestation, which opposes a considerable obstacle to the return of the feces *through the abdominal ring.* When she is safely conducted through her confinement, I shall make an attempt to heal the opening in the ends of the bowels, and make her whole. Of my ability to effect that object I have not the slightest doubt."

Remarks.—This instrument appears to be a valuable substitute for the enterotome of Dupuytren. It is certainly very preferable to the *original instrument* of that surgeon, being possessed of all its advantages, while it secures the cavity of the abdomen from all danger of a breach of integrity without necessarily producing such extended and violent irritation as must result from the process of that surgeon. It may be applied with more facility and is apparently more definite and certain in its action than the original ligature or suture employed by Dr. Physick, particularly when the patient is in the hands of a maladroit or inexperienced surgeon.

The action of the instrument, in the case narrated by Dr. Lotz, was exceedingly happy, as is proved by the slight degree and short continuance of the pain resulting from the pressure, and also by the roundness of the orifice formed by the incision. But it is not improbable that the pressure of any such contrivance, however carefully employed, will occasionally produce the dangerous symptoms observed so frequently in strangulations of small portions of the circumference of an intestine, which symptoms occurred even in the case of Axillius, when the ligature of Dr. Physick was drawn a little too tightly.

Dr. Lotz seems to have acted upon the principle, that a gradual increase of pressure is preferable to a sudden violence sufficient to destroy the vitality of the parts; for, although he directed the instru-

ment to be tightened at first sufficiently to arrest the circulation in the parts included by the fenestræ, he also directed a daily increase of the pressure, which is obviously unnecessary, if the first purpose is once completely accomplished. If the pressure be made sufficient to arrest the circulation in the first instance, there seems no sufficient reason for removing the parts embraced by the instrument, as they might as well be permitted to pass away with the feces spontaneously.

There are two methods by which the required union of the two portions of the intestine, in artificial anus, may be accomplished; first, by very slight pressure, just sufficient to secure the adhesion of the opposite serous surfaces; and, secondly, by very firm pressure, which destroys the vitality of the parts at once. We have heard it suggested that the former of these methods should be adopted, in order to avoid the danger of symptoms of strangulation. Neither the instrument of Dupuytren nor that of Dr. Lotz is calculated to accomplish this purpose, because, in acting on living parts by mechanical contrivances, we never can depend upon the accuracy of our measurement of the force of the screw. But it is very questionable whether the simple adhesion would furnish a sufficient guarantee against subsequent accidents being composed of very extensible materials. In order that either of the methods just mentioned should be safely and effectually employed, it is necessary that the edges of the two fenestræ should remain at all times parallel to each other, and it is very desirable that they should press equally at all points. The double adjustment of the screws in the apparatus of Dr. Lotz may enable the surgeon to accomplish this purpose, when great care is used, but the necessity for frequently counting the half turns of the screws is a serious inconvenience; some better mode of measurement would be very desirable.

One great advantage possessed by this instrument, is its levity. A specimen of the original enterotome of Dupuytren in the cabinet of the Pennsylvania Hospital, weighs about two ounces—the apparatus of Dr. Lotz weighs nine and a half drachms. The two transverse sliders of the latter are common to it, and the improved enterotome of Dupuytren, according to descriptions of this contrivance, which I have never seen delineated. The improved Parisian instrument is said to be even heavier than the original one, and by a little mechanical skill it would be easy to dispense with the slides altogether, without rendering the apparatus unsteady, the screws themselves being made the only medium of connexion between the blades of legs of the instrument. Time will not permit me to present in the present number of this Journal the slight modifications which would reduce the instru-

ment to the greatest degree of simplicity and the minimum of weight, because the description would be unintelligible without a figure drawn from a proper model.   Perhaps the subject may be touched upon in a future number.

From the passages which are italicised in the abstract of the case, it will be perceived that the opening between the two ends of the intestine was effected in a situation outside of the internal abdominal ring. This may have been the result of necessity, for the length of the portions of intestine remaining in the inguinal canal and in the wound may have been too great to permit the instrument to reach within the cavity of the abdomen; but, if so, this circumstance was unfortunate, for the patient cannot be perfectly secured against accidental embarrassments to the passage of the feces, from constrictions at the internal ring.   A part of the rout of the intestinal canal continues external to the cavity of the abdomen, and the case, if there remains no fistulous orifice in the groin, is reduced to the condition of an irreducible hernia, with the intestine adherent to the surrounding parts, without the intervention of a sac.   Firm pressure over the parts, in this condition of things, would obviously endanger an arrest of the alvine discharges, and thus the surgeon may be cut off from the employment of one of the most efficient means for closing the projecting ends of the intestine, and completing the cure.   These remarks are not made for the purpose of criticising the manner of the operation of Dr. Lotz, but simply as an introduction to a suggestion of much importance, now that the worst forms of artificial anus are placed fairly within the reach of surgical aid.

Dr. Lotz remarks, that, before the excision of the mortified portions, an additional part of the intestine was drawn out, and found in a state approaching to sphacelus.   The question of the life or death of the bowel in strangulated hernia is often one of great difficulty, and if artificial anus be regarded as incurable, and a part of the bowel is certainly dead, it is obvious that the safety of the patient would require that the surgeon should leave all such suspected portions in the wound, for there can be no reason why, on this hypothesis, they should be returned into the abdomen.   But if artificial anus be curable, more care is requisite in determining the question, for the longer the exterior portion of living bowel, the greater the difficulty of operating within the abdomen, so as to restore the integrity of the intestinal canal.   All that can be returned as far as the external orifice of the hernia, with a reasonable hope that it will escape mortification, should be so returned, if we wish to facilitate the final cure of this horribly disgusting accident.

The form of the instrument of Dr. Lotz, is not well calculated to pass within the abdomen, except perhaps in artificial anus, from direct or ventro-inguinal hernia with large orifices; for the double shoulder formed by the blades near the fenestræ, is too wide to penetrate the inguinal canal under ordinary circumstances; and it would also preclude the possibility of employing the apparatus within the femoral ring in artificial anus from femoral hernia, by pressing upon the surface of the thigh, and preventing the fenestræ from pursuing a proper direction in passing beneath Poupart's ligament. The difficulty, in the case of common inguinal hernia, can be readily obviated by giving to the shoulder of one of the blades an elevation barely sufficient to give a clearly defined outline to the rim of the corresponding fenestra, which would reduce the instrument to very little more than half its present breadth. I am inclined to think that the shoulder of the other blade might also be reduced in height without serious inconvenience in the treatment of many cases. Whether any other change of form would be necessary to adopt the apparatus to the treatment of femoral cases, cannot be well determined without dissection and measurements, for which time is not allowed at present.

These remarks have been extended somewhat beyond my original intention, but the subject is one involving a question of national pride; and it does no small honour to Dr. Lotz, that he has succeeded in improving the mode of accomplishing an operation which has occupied the genius of Physick and Dupuytren.

ART. VIII. *Case of Gout, complicated with Dropsy, Purpura, and Cardiac Disorder—Dropsy relieved by tapping at the Umbilicus, with some Practical Observations.* By Thomas Henderson, M. D., U. S. Army.

The subject of this case, the late John Spence, M. D., was for thirty years an active practitioner of medicine in the town of Dumfries, Virginia, and in the adjacent country. During this whole period, he practised almost entirely on horseback. His sphere of duty was in a neighbourhood subject to annual visitations of malarial fever, and where intermittents or their sequela always abounded. Though a temperate man, he indulged in the numerous table delicacies which

the waters and neighbouring country abundantly afforded. He came from Scotland in the year 1789, labouring under pulmonary consumption—and he suffered eleven attacks of the autumnal remitting fever, many of them violent.

About the year 1825, his habits, in some respects, underwent considerable change. Having acquired wealth, he retired from country practice; he visited his patients in his carriage; and what with the infirmities of fifty-five years, the inactivity of a corpulent person, and the delicacy of health arising from visceral derangements, the consequences of the numerous and violent attacks of fever he had sustained, his habits of life were comparatively sedentary. Perhaps the malarial atmosphere in which he had lived so long and so uninterruptedly, had engendered, in addition to visceral disease, a flaccid leuco-phlegmatic temperament, that rendered an inactive life agreeable to him. A great fondness for reading concurred with all the above circumstances to confirm him in the habits of a retired and sedentary life.

In 1823, he complained frequently of dyspeptic symptoms, and then had some arthritic pains in the feet. The dyspepsia increased, yet his health was not uncomfortable, until the fall of 1826, when I observed some remarkable disturbances in the vital organs. In November he was on a visit to me. He suffered greatly with palpitation of the heart,—had a frequent, very intermitting pulse, great oppression in the thorax; and on ascending a flight of stairs, or walking up hill, his face became extremely livid. The appetite was good, and *at that time he had no dyspepsia.* I assured him that these phenomena indicated the sympathetic struggles of the gouty habit, and were premonitory of an attack. He returned to Dumfries, and in a few days I received a letter, announcing a violent attack of regular acute gout in the right knee.

Preceding this gout, he suffered dreadfully with dyspepsia. He calls it, in a letter written to me at the time, "this cruel dyspepsia," "the dyspeptic despair," this "unrelenting state of the stomach," or as Sydenham terms it, with his usual simplicity and force, "this *faintness* of the stomach." Dr. Spence declared his sufferings with this dyspepsia were insufferable and indescribable; it induced *actual syncope,* on recovering from which vomiting relieved him greatly. He encouraged this vomiting by introducing his finger into the throat. The greatest alleviation of this gastric distress was derived from a *blister to the region of the stomach;* and in subsequent attacks he used *frictions with hot turpentine.* He found the lotion of Scudamore the most useful application to the gouty joint. The prescription is:—

R. alcohol ℥viij; mist. camph. ℥xvi; apply it tepid on linen cloths constantly to the joint.

In December of this year, 1826, he emerged from his attack of gout with considerable relief from the dyspeptic symptoms; but the thoracic viscera were by no means righted. The pulse was uniformly frequent, from 100 to 120 strokes in the minute; the palpitations were distressing, and he started frequently from his sleep. He apprehends *hydrops pericardii*, because of the seat of the oppression, and because when urine is freely evacuated, the chest is evidently relieved. He used mercurial friction for three nights on the region of the liver, which affected the gums slightly, relieved the dyspepsia, diminished the palpitations, but did not lessen the frequency of the pulse. He was now seized with dry, loud cough; bowels regular; except when using the mercurial friction he had violent pain in the ileum, which was caused by a sudden flow of a large quantity of yellow bile. He took a small opiate at night.

During the month of February, 1827, he had for three or four successive days a chill, followed with fever. Just before this attack the ancles became œdematous, the feet swelled, and urine became scanty. The cough disappeared entirely during the intermittent. When the chills left him, the cough increased very much, so as to raise by expectoration half a pint of tough white mucus. He was twice bled; the pulse being frequent but not very strong; bleeding relieved him; the blood was firmly coagulated; cellular infiltration extended; urine without albumen.

March.—Diuretics failing, he was induced to puncture the right leg, making two incisions through the cutis vera; from these punctures a quantity of fluid was evacuated. He had a severe spontaneous attack of watery green offensive stools; this, with the scarifications, materially reduced the swellings. Early in the month he was seized with a violent pain in the integuments, on the anterior part of the right tibia, about midway between the knee and ancle, to which he made cold applications. In a few minutes the knee-joint of the same limb was attacked with gout. Cough and dyspepsia preceded the gout.

12th March.—I saw him in Dumfries. He had gouty inflammation in the fibrous tissues of the right foot; and, at the same time, a large abscess in the cellular tissue of the right leg. From this abscess there proceeded an extensive slough, and three smaller suppurations subsequently formed. I attended closely to his situation, while with him, for two days. The head was entirely free from disease; regular gout had much relieved the gastric uneasiness; the tongue was moist

and clear.   During the winter he had been confined to a very warm room, almost entirely to bed, where he was too warmly clothed.   The abscess on the leg had assumed what, in his apprehensions, he thought was gangrene; this led him to the use of too heating and stimulating food and drinks.   In this way the action of the heart had been much agitated.   At this time I became convinced that there was organic affection of the heart, and enlargement of the right auricle, from some obstruction to the free passage of blood through the right ventricle. The left jugular vein was greatly enlarged; palpitations were frequent, and the action of the heart indescribably irregular.   He supposed the dropsical intumescence to be the consequence of abdominal visceral disease.   I thought it arose in the progress of diseased heart. I sounded the thorax; the left cavity was not resonant; the right gave a natural *raissonance*.   Influenced by the opinion of diseased liver, he used calomel too freely, and thus perhaps aggravated the disorder of the heart.   The œdema was not very great when I saw him.

April.—About the middle of this month I visited him again.   The dropsy had returned, and was very much increased; there was ascites and hydrocele; the pulse was not at all improved; it was firmer and more active; from the umbilicus to the soles of the feet the skin was covered with large patches of capillary sanguineous engorgement constituting the *purpura urticans* of Willan; the appearance of the skin, and of so extensive a surface, for he was a very corpulent man, was most striking; the heat of the skin and abdomen was increased; I bled him; the blood was firmly cupped; the jugular vein was very large, with a pulsation or rather an undulatory motion quite remarkable.

May 4th.—He had a slight attack of gout, preceded as usual by cough.   He wrote me thus:—"Preceding this accession of gout, there occurred a singular appearance on my head.   A small tumour commenced on the edge of the scalp over my right eye; on this disappearing, another and another showed itself near the crown of my head. They appeared thus in succession as large as partridge eggs; the skin was red, but no pain or itching.   They spread nearly over the whole scalp, and preceding their appearance there was nausea and headache."

22nd.—He had been taking two grain doses of calomel at night; was improperly exposed to a current of night air; became very catarrhal, and was bled with benefit; mercurial fœter appeared in the breath. It became obviously necessary that the long continuing and increasing dropsy should be removed or reduced. He had taken various diuretic preparations, but was doubtful of digitalis. I informed him that in seve-

ral cases, four in number, the most unexpected benefit resulted from the following prescription recommended by Dr. James Johnson, and he agreed to use it. R. fol. digital. ʒs.; aq. fervent. ℥viij.; spir. nit. dulc. ℥s.—macerate four hours, then strain through paper. R. sod. siccat. grs. c.; acid. tartar. grs. lxxx; aq. fontan. ℥ij. Take a table-spoonful of the digitalis infusion with one-fourth of the neutral solution twice a day in a little weak punch.

The pulse acquiring considerable activity, he was bled, and after taking the mixture three days, he discharged, in three nights, three gallons of urine by measure. The effect of this treatment was singular. The pulse fell from 120, with all kinds of irregularity and intermission, down to 80 in the minute; and it became regular without intermission; palpitation of the heart ceased; the dropsy was greatly reduced, and he is much better. Eating some fruit, he was seized with cholera morbus; had watery stools, which still more reduced the swellings, and the *purpura was entirely removed.* He took small doses of acet. morph. at night. This restoration of the pulse to a normal state continued for some time, perhaps for three weeks; it induced me to doubt the existence of lesion in the heart: his health and spirits very much improved; the jugular vein diminished in size so as not to be conspicuous.

June.—An imprudent indulgence in fruit brought on a severe attack of colic, soon after which the legs swelled and purpura returned; he was bled twice, the blood being sizy; he also used the digitalis mixture, and the pulse fell to sixty-five in the minute.

July.—Dropsy increased in the lower extremities; he had dyspepsia and a return of the tumours on the scalp. He passed through this city on his way to Philadelphia. Although much improved in health, he was decidly dropsical. There was peritoneal dropsy, hydrocele and cellular intumescence in the lower extremities. What was thought of his case, and what was done for it by his medical friends in Philadelphia, I cannot minutely say. He travelled to Bedford, found the waters there to produce vertigo. I saw him in September, on his return to Virginia, and he appeared better; his improvement he ascribed chiefly to occasional blood-letting. Dr. Chapman lent him Ayre's Treatise on Dropsy; and, on his return, he took small doses of squill and digitalis, and used occasionally mercurial cathartics; the dropsy, notwithstanding, steadily increased; the pulse had resumed irregularity and intermission.

December.—In his letter he states that his respiration is natural; can lie with ease on either side; no pain; pulse constantly from 100 to 120; on exertion the frequency is greatly increased. Appetite

32*

is good, with tolerable digestion, and daily fecal evacuation, with much flatulence. Urine is straw-coloured, without sediment, and no albumen; mouth has been aphthous.

April, 1828.—He passed a better winter than could have been expected. He had two severe fits of gout, and several slight ones. Being confined to the house, without making any bodily exertion, the action of the heart was not aggravated. The dropsy constantly increased, and in March the abdomen was so distended as to affect respiration, inducing gasping and violent cough. On visiting him early in April, it was determined to tap him.

In infancy he had an exomphalos, and as the water accumulated in the peritoneum, there was a protrusion at the umbilicus. It was diaphanous, evidently containing water. It was excessively tense in the erect posture, and comparatively flaccid in the horizontal. I could imagine no anatomical cause for this tumour, other than the distension of the peritoneum, and its projection on each side of the cicatrix of what once was the fœtal end of the umbilical chord. I therefore urged the Doctor to allow me to make a puncture with a thumb-lancet, to evacuate the contents of the sac. I made an opening about the size of a large orifice in venesection, and in about three hours, with a steady stream, four gallons of water, by measure, were evacuated. He bore the operation well; a great deal oozed from the orifice afterwards. He complained of a dragging pain about the region of the liver and stomach, which arose from a loss of support which these viscera and the diaphragm received from the water. A bandage around the abdomen relieved him very much. The cough and dyspnœa subsided, and he soon walked about and enjoyed exercise.

It was not only gratifying to meet with such immediate success from the simple operation of puncturing the umbilicus, but there was the promise that the tapping could be repeated with great ease, and at pleasure. So it was, for whenever the accumulation became at all oppressive, the peritoneal sac was opened with a spring lancet. He was frequently tapped during the summer and winter of this year. A portion of omentum became troublesome by protruding, but from three to six pints of serum were drawn off, and the abdomen kept comfortable. He had an attack of cholera in June. He travelled in July and August; had occasional attacks of gout in the feet. The pulse continued irregular, intermitting and frequent. The jugular vein diminished in size.

May, 1829.—He passed the very long and severe winter in his room almost entirely. The dropsical swellings were not very troublesome. Tapping was occasionally resorted to, and I omitted to state that

he has been twice operated on for hydrocele. Debility had greatly increased. I received a note from his attending physician as follows:

"Eight or ten days previous to the death of Dr. Spence, the umbilicus was tapped, and about a quart of water drawn off. The orifice would not unite, continuing to ooze until the moment of his death. This, I presume, was owing to the incessant vomiting with which he was harassed. The orifice was closed by ligature, but the efforts to vomit tore it open. He was seized with a violent ague, which lasted an hour, and was succeeded by severe fever and delirium. Heat and pain over the abdomen, costive bowels, twinges of gout through the great toe; pulse 140; these symptoms soon proved fatal."

From this account it appears that Dr. Spence died of peritoneal inflammation. The serous membrane in chronic irritation responded to the irritation of the punctured orifice, which was repeatedly stitched, and acute peritonitis finished the mortal career of this distinguished physician.

Remarks.—1. The operation of *tapping at the umbilicus* was perfectly successful. The operation can, or ought, only to be done when the protrusion of the umbilicus offers a direct and obvious admission into the sac of the peritoneum. What effect the ligature, applied to close the orifice after the last operation, had in inducing peritonitis, is worthy of consideration.

2. The *dyspepsia* preceding the gout was conspicuous for intensity, and for producing *tumours on the scalp* so numerous and large. I have never in any other case seen those tumours. They are not more remarkable than the wheals of urticaria and other eruptions, that arise so suddenly from gastric irritation. This gastric irritation induces numerous and curious remote sympathetic phenomena.

The formidable dyspepsia, so accurately portrayed in the language of the sufferer, should be treated with stimulating frictions; and, in certain cases, may be speedily removed by exciting vomiting with camomile tea. In other cases, an emetic of ipecac. and carb. potass given in ginger tea. This emetic should only be used when the stomach is loaded, or oppressed with acid or unpleasant eructations. Immediately after the emetic, frictions to the feet, with camphor liniment, give favourable direction to gouty action. A sinapism to the stomach may be necessary at the same time. I need not say that the emetic is not called for in ordinary gastric embarrassment, preceding gout.

3. The case of Dr. Spence is not the only one in which, as premonitory to the gout, I have known the heart so agitated, and the circulation so obstructed, as to threaten immediate danger. The action of

the heart is often so much increased in force and irregularity, and this so continually, as to simulate hypertrophic and aneurismal disorder. The following case shows this.

A distinguished physician, whose eye these remarks may meet, was in early life seized with palpitation at the heart. It was not subdued by treatment; and he consulted the late Professor Rush, who urged the depleting plan to great extent without benefit. He then made application to the late Dr. Kuhn, of Philadelphia. The doctor advised him to discontinue the bleeding and other depleting measures; and to substitute a few grains of powdered gum guaiac. during the day, and a little flor. sulph. at night, assuring him that the true nature of his case would then soon be made manifest. The result was, that gout, in its acute regular form, appeared, and dispersed entirely the affection of the heart. When these symptoms about the heart arise, the habits of the patient should be considered; and particular inquiry be made if pains in the ankle or toe have been felt. Such pains sometimes precede the regular demonstration of gout, for a long time, especially where habits and hereditary predisposition concur.

This medical friend, to whose case I allude, and who has been a martyr to gout, has very often felt what cannot be better named, than by calling it the *aura arthritica.* In an instant, he has felt the most extraordinary passage of gouty pain from head to foot. He declares that he has perceived the dart of the aura from the head to the toe, in the twinkling of an eye—after which regular gout would have course.

The premonitory symptoms of gout are very various, as different organs are disposed to sympathize with the stomach. The practitioner cannot be too well aware of this. The following case is now under my care.

M——, a soldier, æt. 40, is given to drinking a great deal of ardent spirit daily; yet is seldom unable to do duty. On 18th April, 1836, he dined on fresh fish in Baltimore, drank as usual, of whiskey, and returned to the post, at 3 P. M. He was soon after seized with vomiting, and severe headache. At 7, P. M., I saw him in hospital, enduring the most intense pain through the head; pulse full, face turgid; stomach sick, with occasional efforts to vomit. The stomach having been entirely emptied of its contents, I bled him to thirty ounces, when he became faint. With reaction the pain returned, though not so violently. Ordered a dose of calcined magnesia, with cold applications to his head. Bowels were freely open.

19th. 7, A. M. Headache again intense; face somewhat livid; tongue clean; bled him again to $\mathfrak{Z}$xvi. and gave him calomel, grs. x.

if not relieved, apply cups to the neck. 6, P. M. Bowels freely
evacuated; head much relieved; great vertigo; pulse soft; skin moist;
was cupped.

20th. 7, A. M. Some headache, with increased vertigo; apply blis-
ter to the neck. 6, P. M. Since the blister drew, the head is entirely
relieved; but he complains of rheumatism in his foot. On examining
the limb, I find in the great toe high acute gouty inflammation. The
next day the toe was relieved, but the ankle was full of gout. The
colchicum and small doses of magnesia relieved the pain.

I never saw an adult suffer more severe pain than this soldier did
—a pain in the head entirely relieved by gout in the foot. On in-
quiry, I found that he had often had pains in his feet, but never to
confine him.

The pain of gout is but the play of morbid sympathy, primarily ex-
cited by irritation in the chylopoietic organs. Gout can be properly
treated only by taking this simple view of it. No other need be taken
either for present relief, or for the permanent removal of the disease.
Remedies directed to the removal of abnormal irritation, and processes
on the stomach, duodenum, and liver, will render local applications
almost useless in gout during the paroxysm. Suitable diet and exer-
cise will prevent a recurrence of the disease. That the strongest
hereditary predisposition to gout can be thwarted by appropriate
habits, I do not for a moment doubt. These habits are such as tend
to preserve the integrity of the digestive functions; or they may go
farther, and actually improve any fault hereditarily existing in those
functions. When we approach gout as we would a pleurisy, and as-
sure our patients that we have the same power over the one disease as
the other—that gout is a less dangerous disease than pleurisy—that
the patient has the great advantage in gout, as he can control the re-
turn of the disease; we may then hope to inspire our gouty patients
with a firmness of purpose to resist the habits that give rise to the dis-
order. So long, however, as we talk of the necessity of an occasional
or annual attack of gout, we perpetuate the case. It is true, that,
when the gouty habit exists, the most safe sympathetic irritation is
the pain in the foot, or in other joints. We should aim constantly at
a radical removal of the diathesis; this can be done only by deter-
mined self-denial on the part of the patient. I speak now of the radi-
cal removal of gout in those who have not repeatedly suffered from it.

4. The state of the capillaries is worthy of a remark. The serous
membranes were all in irritation, producing great effusion. The effu-
sion was in the pleura, in the peritoneum, in the tunica vaginalis, and
the cellular tissue was anasarcous. At one time that tissue in the

lower extremities was tensely infiltrated, and from the heat of the bed to which he confined himself for a whole winter, and from using too full diet, effusion of blood occurred in the dermoid system, giving to the abdomen below the umbilicus, to the legs and thighs, a deep claret colour. It was a form of purpura. The very large dark red blotches appeared distinctly through the thick plantar cuticle. The whole appearance was most remarkable.

I commend, after much satisfactory experience, the digitalis mixture given above. To excite the absorbents and kidnies to remove serous collections, it has, in bad cases, at critical junctures, exceeded in effect all other means in my hands.

The capillary congestion was the result of increased action in and sanguineous determination to those vessels. The heat of the room, of the parts of the body under the bed clothes, the action of the heart, and the unsuitable diet, gave febrile aspect to the dropsy. Bleeding was serviceable. If my impressions be correct, dropsy is much less frequent then it was thirty years ago. It is so, probably, from the improved practice in those diseases that are prone to terminate in dropsy, particularly some forms of fever. It is, doubtless, somewhat owing to more correct views of the pathology of dropsy. Professor Rush did much to elucidate this subject practically, and hence the case of dropsy from increased vascular action is more readily recognised than when it was supposed "that debility caused dropsy."

The heat of the surface—the soreness of the integuments, the redness of the skin—the active pulse—the thirst—although there be dropsy, ought not to be set down to as theories. They point to bleeding, to the persevering, judicious use of appropriate cathartics, to the persuasive effects of the supertart. potass. My experience and success with bleeding and supertart. potass. in dropsy have been truly satisfactory.

ART. IX. *Case of Induration and Enlargement of the body of the Penis, with a new method of amputating that organ.* By THOMAS L. OGIER, M. D., of Charleston, S. C.

A negro man, (Abraham) aged 27 years, was sent from the country for an enlargement of the penis and difficulty of urinating. Upon examination of the parts, the penis was found to measure eight inches

in length, and on its under side, from about three inches from the scrotum to the neck of the penis, the structure of the organ was changed so as to resemble cartilage, and so much enlarged as to throw the glans upwards until almost in contact with the dorsum of the penis, an inch above the neck. Upon the enlarged portion were two fistulous orifices, through which only a few drops of urine passed when the patient urinated, the greater portion of the water passing in a very small stream through the natural channel. The glans penis was of the natural size, and free from disease; its shape was somewhat altered from being turned upward by the pressure from beneath. A small silver catheter was passed into the urethra, but it was with the greatest difficulty that it could be made to pass through that portion of the urethra which was included in the enlargement of the penis—as the urethra was almost obliterated by the pressure of this enlarged part. After the catheter had passed beyond the enlargement, it met with no resistance, except from being so closely embraced by this portion, until it reached the bulb of the urethra—here was evidently a stricture, which, however, was overcome without much difficulty, and then the catheter entered easily into the bladder. It was introduced every day for eight days, and then passed with scarcely any difficulty.

Ten days from the commencement of the treatment, I introduced a larger catheter, and in order to heal the fistulous openings, allowed it to remain in the bladder. The ulcers, however, instead of healing, became gradually worse, and extended themselves *externally* over the surface of the enlarged portion of the penis, although their *internal* orifices remained the same for the urine, when the catheter was withdrawn, only came from them by drops.

In order to ascertain how deeply this alteration of structure of the lower part of the penis extended, I made a longitudinal incision into it, and deepened it gradually until I came to the urethra, a part of which was also involved in the disease—resembling very much in structure the cartilages of the ribs of a very young subject. Finding the disease so extensive, including nearly the whole structure of the penis, it was thought proper to amputate above the enlarged portion. But as amputation, by the ordinary method, would necessarily sacrifice the glans penis, which was apparently sound and retained its sensibility, we determined to cut through the penis above and below the diseased portion, take this out, and then apply the glans to the stump and endeavour to unite them. We confess that we scarcely expected the operation to succeed, or if it did, that the functions of the organ would be restored; but still the experiment was worthy of

trial; for if the glans united, although its functions might be destroyed, there would be no apparent deformity as after ordinary amputation of the penis; and if it did not adhere, it would be nothing more than the common operation. The pain attending it would be more severe, but to this the patient was willing to submit to save the head of his penis.

The operation was performed on the 20th of June, 1835, in presence of Drs. Holbrook, Baron, Gourdin, Logan, and a number of students, in the following manner. I divided the penis transversely from below upwards about two lines above the neck—having divided the urethra, I cut carefully through the corpora cavernosa until only about one or two lines of the dorsal portion of this remained. I then turned the edge of the knife towards the pubis, and cut in a horizontal direction until I had extended the cut above the diseased portion, leaving a layer of the corpora cavernosa about two lines thick and about four in breadth attached to the skin on the back of the penis. The bistoury was then turned downwards, and the section of the penis thus removed. The glans was therefore left connected to the stump by a thin layer of the corpora cavernosa and the skin on the dorsum of the penis. The hæmorrhage was not very extensive, only two arteries requiring the ligature. The general oozing from the stump was easily arrested by dusting the parts with powdered resin. The wound was allowed to remain exposed to the air for five hours before the dressings were put on. The glans penis was then brought down and applied to the stump, and confined there by seven sutures. A silver catheter was introduced carefully so as to give support to the parts, as well as to prevent the urine from passing through the urethra; and, finally, the whole penis was enveloped in fine cotton, kept in place by a slight bandage.

I used the cotton more to keep the parts in contact than to preserve the heat in the glans; and in all wounds about the ear, lips, or nose, I have found it very effectual in keeping the parts in contact: the fibres of the cotton on each side of the cut become moistened from the oozing of the wound, and afterwards dry and adhere to the lips, and thus prevent all possible motion between them.

The dressings were removed forty-eight hours after the operation, and the glans appeared of its natural colour, and was warm to the touch, except at the inferior portion where the frenum had been attached; here it was discoloured, cold, and evidently in a state of mortification for two lines in breadth; this we attributed to the pressure of the catheter. A little powdered bark was sprinkled on this discoloured portion, and the same dressings renewed.

On the 24th, the dressings were removed, and the discoloured portion was found to have nearly separated; when it was entirely removed by the scissors. The glans was, therefore, open at its inferior portion, but upon pressing it, both sides could be made to meet so as to surround the catheter. Every part of the glans appeared to have united to the stump; three of the ligatures had ulcerated through, and the remaining four were now removed.

On the 25th, the glans had united in every part except about two lines on the right side between two of the sutures. A probe could here be passed down to the catheter which was in the urethra. This opening was healed in the course of four days by scraping the borders every day with a cataract needle introduced to the bottom of it, and then applying a tight bandage so as to keep this part of the glans in contact with the stump. The loop of skin on the dorsum of the penis, and the layer of the corpora cavernosa, which was left to keep up the circulation until the glans became united, was now tied at its base with a silk ligature which was renewed and tightened every morning until it dropped off, which did not occur till the 15th day after the operation.

The catheter was withdrawn on the 16th day, and the patient urinated freely; the penis had a natural appearance except that the glans, instead of surrounding completely the urethra, was open at its lower portion, which was, however, of no inconvenience to the patient.

On the 25th day, some difficulty was experienced in making water, and the testicles and scrotum became enlarged. Upon introducing a small sized catheter, an obstruction was met with about two inches from the end of the penis, which appeared to be caused by a thickening of the mucous membrane for some lines in extent. The whole penis was also swelled and its temperature increased.

Six leeches were applied along the course of the urethra, and on the next morning the same catheter was introduced with less difficulty. The size of the catheter was increased gradually until the urethra had attained its natural size.

The swelling of the scrotum subsided without difficulty; the patient continued to do well, and was preparing to return home (seven weeks after the operation) when the stream of urine began again to diminish in size. A catheter was introduced, and allowed to remain several hours in the urethra; this was repeated every day for three weeks, and at the same time ioduretted mercurial ointment was rubbed along the under surface of the penis.

The patient remained in the city until the 15th of October, and had no return of his disease up to that time; he was then sent into

the country to his master's plantation, where he now continues perfectly well.

While the patient remained with me, his penis became several times semi-erected during the introduction of the catheter; the glans always participating in the general enlargement; and its sensibility, according to his account, was not materially affected: it is certain that he had communication with a woman during his stay in Charleston.

We have not heard of this operation ever having been performed before, which no doubt is easily accounted for by the cases in which it is applicable being exceedingly rare. Cancer, and diseases for which the penis is usually amputated, commencing generally in the glans. As cases, however, do sometimes occur in which the glans is not affected, we think in such this operation should be performed in preference to amputation by the common method.

Charleston, S. C., May 1*st,* 1836.

MEDICAL EDUCATION AND INSTITUTIONS.

ART. X. *Remarks on Clinical Instruction.* By W. W. GERHARD, M. D., one of the physicians of the Philadelphia Hospital at Blockley.

Clinical medicine is not regarded in this country as a distinct branch of medical instruction. The professor of the practice and theory of medicine in our schools, is sometimes expected to illustrate his course of lectures by examples of cases found in the wards of an hospital, to which he may chance to be attached. If the class of students be small, they accompany the physician in his visits to the wards, hear the prescriptions, and listen to such remarks as may escape him. If the students be more numerous, a certain number of patients are brought into the amphitheatre of the hospital, and the details of their cases are communicated to the pupils, while the patients are still before them, or immediately after their removal. In this manner a more vivid impression is made upon the senses, and the recollection of the group of symptoms observed in the case and of the method of treatment employed, is much more permanent. Demonstrations of pathological anatomy are sometimes made in the same amphitheatre.

This course is pursued at the two hospitals of Philadelphia, but neither of these institutions was formerly accessible to the students more than twice a week. At Boston, and, I believe, New York and Baltimore, the public visits are more frequent, but in none of these cities has any physician devoted his time and talents to the especial cultivation of clinical medicine, which is still looked upon as a mere appendage to the theory of the science.

When we compare the slender opportunities generally offered in this country with the excellent organization of the clinical schools of the continent of Europe, we are obliged to admit one of two conclusions,—either that, in even the oldest and most conspicuous of our medical colleges, clinical medicine is considered as a superfluous branch of instruction to the student; or, if as a highly essential part of medical education, that it is of so easy attainment, that a dozen or twenty lectures upon the subject are amply sufficient for qualifying students for receiving the degree of doctor in medicine, affirming to the world

they are skilled in the medical sciences. This imperfect mode of instruction is strictly limited to lectures, as very few of the pupils possess the necessary facilities for examining the symptoms of the patients and acquiring those habits of investigation which may serve them in after life.

The imperfect state of clinical instruction in this country, is not owing to any deficiency of instructed physicians amongst those charged with this department of instruction. They have done much to remedy the evil, but the occupations resulting from an extensive practice, or from active employment as teachers of other branches of the science, necessarily impede that uninterrupted devotion to clinical studies which is requisite for their successful prosecution.

A source of difficulty may also be found in the unfortunate system generally pursued in our hospitals. Each physician or surgeon is on duty but for a few months in each year. The interest which he might feel in his cases is diminished by his inability to watch their progress during a sufficiently long period, and his habits of regular hospital attendance are broken up. From his infrequent visits, it is rarely possible for the attending physician to preserve that degree of control over the treatment of the cases which is essential to the purposes of clinical instruction. The patients are left to the management of the house physicians, who in most cases have scarcely completed their preliminary studies before their appointment to their situations. Such a course is necessarily destructive to accurate observation, and must greatly diminish the advantages of large hospitals as schools of practical medicine.

I shall now enumerate the chief requisites for a course of medical instruction; I have already pointed out the mode pursued at the Philadelphia Hospital, where this department is better organized than in most of the American hospitals.

General requisites for a complete course of Clinical Instruction in the Practice of Medicine.—These requisites may be classed under the following heads:—1. Of the Patients. 2. Of the Pupils. 3. Of the Teacher. 4. Of the Instruction by Lectures. 5. Examination of the Patients' cases, and Demonstration of the Pathological Changes of the Body. 6. Of the Practical Application by the Pupils of the principles they have received.

The necessary dependence of many of these particulars upon circumstances beyond the control of either teacher or pupil, may prevent their proper extension, but each part of the scheme of instruction should be perfected as far as the case will admit.

1. *Of the Patients.*—The basis of clinical instruction should al-

ways be sought in an hospital, where a considerable number of patients are collected together. The advantages of hospitals are obvious. Different diseases are presented at the same time, so that the symptoms which characterize them may be compared together, and their points of difference or resemblance may be clearly indicated. In the more common diseases, from the number of patients affected with them, the peculiarities of individual cases of the same malady may be often studied. Those affections which are more rare require a careful examination of each example which may present itself, which is rendered easy by the long residence of the patient at the hospital, where he may be constantly under the inspection of the medical officers. The facilities for noticing the symptoms and watching the effect of remedies, are in all cases greater in the wards of an hospital than they can possibly be in private practice, where each patient is at a distance from the others, and can neither be visited at as short intervals of time nor be examined minutely. Finally, the opportunities for careful inspection of the morbid phenomena remaining after death are always greater in hospitals than in private families.

These are the chief advantages peculiar to hospitals; but there are also some circumstances which diminish the value of such institutions, as schools of practical medicine. The patients admitted into them are rarely seen in those early periods when therapeutic agents are most efficient; most of them are labouring under the effects of diseases of such long standing, that the structure of the organs has become altered by deposits of new products into their tissues. Almost all the patients have been subjected to various plans of treatment, not always of the most judicious kind, sometimes masking the real symptoms of disease, and confounding them with the effects of different medicinal agents. In such cases of doubt a long and careful interrogation is required to enable the physician to draw the distinction between the primary and the accidental symptoms. It is, however, generally known, that the best marked and most severe examples of disease are met with in hospitals, so that the physician who has studied chiefly in these large institutions is agreeably disappointed, at his entrance upon practice, at the milder aspect which disease presents.

The actual arrangement of well organized hospitals differs but little; the patients are rarely classed in wards specially appropriated to the treatment of particular diseases, although such a division is not without its utility when the hospital is very large. But in most institutions of this kind we are compelled to place patients affected with various diseases in the same wards; this method facilitates the comparative

33*

study of different affections, though it is less favourable to the thorough investigation of the various symptoms of each malady.

The furniture of the hospital should be simple, and limited to articles of real utility. The bed on which the patients are placed should be of a suitable height, and made in such a manner as to permit a complete examination of every part of the body. Other expedients for the convenience of the pupil, such as labels over each bed, referring to particular numbers of the house register, are readily suggested by the peculiarities of each clinical school.

II. *Of the Pupils.*—A knowledge of the elementary sciences required in a course of medical instruction must be obtained by the pupil before entering upon his clinical studies. Anatomy, physiology, chemistry, and the materia medica, should be already studied, and pathology and therapeutics ought to be so far familiar that he can easily understand the terms and mode of reasoning which are constantly employed by the clinical teacher.

As the time spent by the pupil at an hospital must necessarily be short, he should employ it fully, and avoid all conversation in the wards not strictly connected with the facts presented by the case before him; even the comparison of those facts, and the deductions from them, should be postponed until a better opportunity. In his examination of the patients, the pupil should studiously avoid all unnecessary questions; nothing should be asked but what is indispensably necessary for understanding the case which has been detailed by the teacher. Those examinations which are made by the actual inspection and touching of the patient's body, must be conducted with still greater reserve than mere interrogation; the pupil should avoid all unnecessary exposure as well as fatigue to the patient, and should practice his examinations with so much lightness and caution as to avoid giving the slightest pain.

Some pupils should be selected to preserve a record of such facts as may be useful materials for the science of pathology. These pupils must be amongst those most advanced in their studies; their examinations should be conducted in accordance with a plan of investigation previously adopted, and their reports should afterwards be read and verified by the teacher. The number of pupils of this class must necessarily be small; they should devote a long time to the patient examination of chronic cases, but a shorter period will suffice for the study of the acute forms of disease. The cases noticed by these students will contain an account of the symptoms and of the physical alterations peculiar to each, an analysis of the signs necessary to the diagnosis and prognosis of the disease; the opinion of the student

should afterwards be given as to the best mode of treatment. Such an exercise is the most perfect practical examination which the physician can undergo—it is the touchstone of his professional abilities, and is a test which should always be demanded before his entrance into practice. The length of the course must vary according to the amount of knowledge possessed by the pupil; six months at least should be devoted to clinical instruction, which need not consume more than a part of the day.

III. *Of the Teacher.*—In a course of clinical instruction, the success at last must depend upon the physician who is charged with it. He must give the impulse to the inquiries of his pupils, and must direct their enthusiasm into a proper channel;—he must verify the accuracy and extent of their acquirements, and he should contribute by his publications to the facts possessed by medical science; for such requisites in a teacher, a mind fittest for observation and a long protracted course of special studies are both indispensable. The science of pathology has become so extensive, and the means of investigating disease so numerous, that a long devotion to his special objects is necessary to place a clinical teacher upon the level of modern science.

The practice of most countries is not in accordance with these views. Clinical instruction is regarded as nearly analogous to ordinary medical practice, and the only requisite for a clinical teacher is a long continued and extensive practice, which necessarily tends to prevent that constant devotion to the progress of the science demanded in an instructor for the younger members of the profession.

IV. *Lectures* are less necessary in a course of clinical medicine than in any other department of instruction; they should be closely connected with the cases at the moment in the hospital, and should retain as systematic an order as is compatible with the irregular entrance of patients affected with special diseases. The peculiarities of the case actually under inspection should be mentioned and compared with the symptoms of other cases of the same disease.

V. The examination of patients at the bedside is made in presence of a part of the class of students; it should be directed in such a manner as to habituate the pupils to habits of correct observation, and of critical analysis of facts described by the patient as occurring previously to his entrance into the hospital. An important addition to this part of the course is the demonstrations of pathological anatomy when practicable, to verify diagnosis, and render the classification of disease more perfectly understood by the pupils.

VI. The last part of the course is the practical exercise of the

pupils. They should be required to examine patients, indicate their symptoms, and make their own inferences as to the nature of the disease. They must afterwards recommend the remedial measures which they prefer, and submit their reasons to their teacher. This practical sort of instruction is more appreciated in Germany than in France or England.

It is, however, in some respects the most important part of a scheme of medical instruction. It is the practical application of the doctrines taught in the schools, which must become the daily and hourly occupation of the practitioner. It is the bed-side experience which is of absolute necessity to the physician, and must be gained by him slowly and at the expense of the comfort of his patients, or rapidly and without obliging the sick committed under his care to pay their tribute towards the completion of that education which ought to have been finished before entering upon practice. Not only does the young practitioner gain experience slowly and with difficulty if unaided by those who are farther advanced in their professional career, but there are many methods of explication of disease, and there are peculiar habits of observation that can scarcely be acquired by one who is confined to his individual experience. These habits of accurate observation are slowly acquired without the aid of a judicious system of clinical instruction.

REVIEWS.

Art. XI. *Der Alp, sein Wesen und seine Heilung. Eine Monographie*, von Moritz Strahl, Dr. der Medizin, Chirurgie und Geburlshülfe, und Königlicher Kreis-Physikus. pp. 253, 8vo. Berlin, 1833.
A monograph on the nature and treatment of Incubus, or Night-Mare. By Moritz Strahl, Doctor of Medicine, &c., &c.

The peculiarly distressing affection which constitutes the subject of this monograph, though well known to many of the ancient physicians, and frequently observed by the moderns, has never received that attention demanded by its importance. In most of the systematic treatises, it has either been passed over in silence, or received a very superficial and unsatisfactory notice. By many, indeed, it seems to have been confounded with other nervous diseases. By some it has been regarded as a species of epilepsy, while nearly all who have given it any consideration, have failed to furnish any clear and satisfactory account of its pathology and treatment—under this paucity of information, in relation to a disease of so much importance, every attempt to develope new light, calculated to elucidate its nature, and to lead to a more effectual method of mitigating its painful visitations, must be highly appreciated by the medical profession. Such an attempt has been made by Dr. Strahl, in the monograph under review, and few individuals, perhaps, could be found better qualified to execute the task with ability. A victim himself to all the miseries of incubus, or night-mare, he has possessed excellent opportunities of analyzing its protean characters in his own sufferings; and doubly stimulated by this circumstance to concentrate all his zeal and energies upon the investigation, he has not only furnished a faithful exposition of all the fruits of his personal observations, but has likewise given a very full and lucid account of the entire literature of the disease.

In the first part of his work, Dr. Strahl enters briefly into the historical details of his subject. It seems to be doubtful whether the disease was known to Hippocrates. It was, however, noticed by Galen, who regarded it as a species of epilepsy occurring during sleep *(De utilit. resp.)* and by many of the ancients, it was attributed to the visitation of an evil spirit. By some it was supposed that females were visited during sleep by satyrs and fairies, with the object of gratifying their lust; and that from this originated the term *Incubus,* applied by the Latins to the disease. Galen, Diascorides,

and many of the Greek writers speak of it, under the name of εφιαλτης, or εφιαλτης πνιγμος. Cœlius Aurelianus calls it επιβολη, *impressio nocturna;* Paulus Ægineta πνιγαλιων, *strangulatus;* and while by some the first term was supposed to be derived from εφιαλλειν, *insilire,* or επι βαλλειν, *adjicire,* it is asserted by Forestus, on the authority of Benedictus Faventinus, to have taken its origin from a Greek named Επιαλτης, who was greatly addicted to habits of intoxication, and who at such times suffered much from the disease. He represents that this individual was in the habit of falling into deep and protracted slumbers after his debauches, during which he received the responses of the gods; and we find this sentiment beautifully portrayed by Virgil in the following lines:—

> Pellibus incubuit stratis, somnosque petivit:
> Multa modis simulachra videt volitantia miris,
> Et varias audit voces, fruiturque Deorum
> Colloquio, atque imis Acheronta affatur Avernis.

Notwithstanding the vulgar prejudice amongst the ancients, that the disease in question was owing to the agency of demons, or evil spirits, Oribasius, and Ætius, generally so accurate in their observations, entertained much more correct views; and it is expressly declared by the latter, "Incubus non est dæmo, sed magis præludium et præfatio quædam morbi comitialis, aut maniæ aut apoplexiæ." *(Tetrab. II. Sect. II. cxii.)* Still the same idea of demons, witches, and evil influences, continued to prevail long after the revival of letters, and while the unfortunate victims of night-mare were supposed to be possessed, or bewitched, relief was only sought through the mystic rites of witchcraft. A new era in the history of the disease may be said to date from the time of Wierus, who furnished a much more rational exposition of its characters than had been done by his predecessors; and to the fruits of his labours, were afterwards added the more satisfactory elucidations of Vesalius, Forestus, Sylvius, Sennertus, Zacutus Lusitanus, and many other distinguished individuals, who flourished at that time. After the middle of the eighteenth century the subject seems to have lost nearly all its interest, and no very important data were added in relation to the pathology and diagnosis of the disease. In more recent times it has been much neglected, and those who have ventured to give it any consideration, have treated it in so superficial a manner, as to leave its pathology and treatment still involved in great obscurity. Our author mentions tracts, or papers, published by Waller, Doney, Adler, Wolter, and Simpson, but does not seem to appreciate very highly their attempts to add to the stock of knowledge on this point of medical pathology. Indeed, a cursory examination of all that has been done will suffice to show how limited is the amount of information we possess on the subject, and to indicate the strong necessity for more careful and accurate observations, if we would understand a malady attended with phenomena so difficult to be properly explained.

Incubus, according to Dr. Strahl, is characterized by an oppressive sense of suffocation in the precordia and chest, generally coming on during sleep, continuing only for a short time, and which is completely overcome by a few deep inspirations. When the disease attacks during profound sleep, the powers of articulation and voluntary motion are often completely annihilated, and the individual is impressed with the image of some object compressing his chest. p. 56.

Many variations are observed in the mode of attack, according to its violence, and the condition of the individual at the time. None but those who have experienced its influence, can be qualified to depict the horrible sensations which attend it. The unfortunate victim, while he can trace the outline of some hideous monster perched bolt upright upon his breast, is doomed to experience all the horrors depicted by the Mantuan bard:—

> ———— Non lingua valet, non corpore notæ
> Sufficiunt vires, nec vox ant verba sequuntur.

Or if the subject be some love lorn maiden—

> "O'er her fair limbs convulsive tremors fleet,
> Start in her hands, and struggle in her feet;
> In vain to scream, with quivering lips she tries,
> And strains in palsied lids her tremulous eyes;
> In vain she wills to run, fly, swim, walk, creep;
> The will presides not in the bower of sleep,
> On her fair bosom sits the Demon—Ape
> Erect, and balances his bloated shape;
> Rolls in their marble orbs his gorgeous eyes,
> And drinks with leathern ears her tender cries."

All these sufferings may come on without any premonition. The individual, perhaps, retires to bed under the apparent enjoyment of perfect health and comfort, and is soon lost in profound and tranquil slumbers. After a while he dreams and experiences variable sensations, which, however, are all dispelled by the consciousness that he is in bed. All of a sudden he experiences a heavy weight on his breast, creating an urgent sense of suffocation, and vainly endeavoring to remove it, he attempts to cry out, but his voice fails—he makes an effort to move, but not a fibre of his muscles yields obedience to the calls of volition. The feeling of suffocation increases every minute, and the condition of the individual is rapidly rendered more distressing by the delusion that takes possession of his dream, that a giant, a great dog, a bear, an old hag, &c. is mounted upon his breast, and is the cause of his distress. The difficulty of respiration becomes more and more difficult, and after repeated efforts to speak, he finally succeeds in giving utterance to slight deep groans, which call the attention of other individuals who are sleeping in the same room, or he is finally awakened by the sound of his own voice, together with his feelings of extreme suffering. With the first deep and free inspiration, every sense of suffocation and uneasiness is annihilated; the

patient falls again into tranquil slumbers, and awakes in the morning refreshed and invigorated, and without any unpleasant sensation. The only reminiscence he retains of the events of the night is, the image of the illusory object which oppressed him in his sleep, and this, with the over credulous, is often magnified into the importance of a real phantom.

These may be regarded as the leading phenomena of a mild attack of incubus. In more inveterate cases, the sufferings of the individual are much more extreme. In such instances sleep has scarcely sealed his eyes, before he is seized by the symptoms of an attack. Slight spasms in his upper or lower extremities come on; he experiences a more or less intense spasmodic constriction, about the neck; shocks like those of electricity agitate his body;—the epigastrium is distended and sensitive to the touch; the pulse, if felt at this time, is small, irritated, and jerking; and the respiration is difficult, on account of the existence of an obstacle to the ready descent of the diaphragm during the act of inspiration. On account of this embarrassment of the breathing, the lungs are not fully distended with air, and the patient makes repeated efforts to inspire more freely, which only tend to augment the precordial distension. Finally, sleep prevails; the wearied eyelids close involuntarily; and the oppressed individual starts suddenly with a loud cry, feeling that the sense of suffocation can only be overcome by a full and deep inspiration. Very often there is a sensation of wind ascending from the stomach, and diffusing itself through the chest; but, in some instances, there is no very sensible feeling of pressure about this region. Often, as soon as the slight disturbance already experienced has subsided, a suffocating sense of oppression is experienced about the precordia, which, as remarked above, conveys the feeling of wind diffusing itself through the thorax:—a cold sweat breaks out upon the head and breast, and the sufferings of the individual are increased. He now resumes the recumbent posture, but is unable to enjoy any comfortable and profound sleep. As soon as he falls into a slight dose, all the sufferings of the scene already described are renewed, and in this manner he is subject to a succession of attacks of the same kind, which often continue until after midnight, or even late in the morning; the violent cramps and spasms alternating with the brief periods during which he is awake. Tranquil and refreshing sleep only comes to his relief after the developement of a gurgling noise about the pylorus, which is followed by a subsidence of the feeling of distension and suffocation. The sleep is seldom disturbed after the occurrence of these changes; and if nothing should transpire to awaken the individual, it rarely happens that his subsequent sleep is broken by a renewal of the distressing symptoms which had harassed him in the first part of the night. When the disease has attained this degree of intensity, the unfortunate sufferer is seldom allowed a single night respite. It is somewhat remarkable, however, but still perfectly intelligible from the nature of the cause, that under these circumstances the patient

seldom perceives any phantom, and that only when the attack takes place at night. Even in the day, and when he is fully awake, he frequently experiences attacks of spasm, embarrassed breathing, and oppression about the precordia, which, however, have this peculiarity, that they subside as suddenly as they take place.

These are by no means the only symptoms experienced in the disease, whether it attack in the sleeping or the waking state. Painful as they are, others are sometimes developed infinitely more distressing. This is particularly the case, when, in addition to the suffocating sensation felt in the chest, the patient experiences a kind of *aura*, diffusing itself from thence to the brain, giving rise, in an instant, to a profound impairment of the sensorial function, and threatening a total annihilation of the acts of the brain, or an attack of apoplexy. Luckily, these alarming symptoms are removed the instant the individual raises himself in bed, and generally free eructations of air take place from the stomach, which are followed by complete relief. But so soon as he again falls asleep, all the urgent distress is renewed.

Those who are affected with incubus in a severe form, suffer during the day, and while they are awake at night, with the spasmodic and other unpleasant sensations which forebode an attack of the disease. The individual sometimes experiences the feeling of a current of cold air ascending from the region of the stomach, and diffusing itself near the brain; he is unable to cry out, and in order to prevent himself from falling prostrate, he seizes upon the nearest object at hand. A deep inspiration is generally sufficient to dispel the unpleasant sensation, but very often the accessions are repeated from four to six times in the course of an hour, and with each renewal of the attack, the symptoms of apoplexy and sudden death become more urgent.

These were the symptoms experienced by Dr. Strahl in his own case. Many others have been enumerated by authors, not the least distressing of which, is the false perception of some object mounted upon the chest, with the desire of suffocating the individual. "Enim vero imaginantur ægri nunc ac si canis, ursus, leo gigas, vir niger, faunus, satyrus, spectrum, saga, diabolus cubiculum intraret, propè lectum sederet, pectori insiliret quandoque ad usum turpissimæ libidinis excitaret." (*Jos. Frank. Prax. Med., &c.*, tom. iii. 416.) Palpitation of the heart, oppression about the chest, mental confusion immediately after waking, tremors of the limbs, roaring in the ears, &c., are mentioned by the ancients as common consequences of an attack of incubus. Etmüller remarks, moreover, that minute reddish brown points, like flea bites, are sometimes apparent on the skin; but our author states that he has never observed this symptom, nor has it been noted by others. It is stated by Cœlius Aurelianus, that when the individual awakes, all the natural openings about the face present a preternatural degree of moisture;—the nose, eyes, and ears, exhibit evidences of increased secretion; the patient coughs violently, and complains of a degree of dryness or hoarseness about the throat. These symptoms, according to Dr. Strahl, have not been noticed,

either by himself or others; but he remarks that constipation of the bowels, an abnormal state of the alvine evacuations, disturbances of the digestive function, flatulence, &c., are almost constant attendants on the disease, and constitute leading conditions in its pathology.

After detailing these characters of the disease, and noticing cursorily the conflicting definitions of it which have been made by different authors, Dr. Strahl proceeds to examine those phenomena which have been considered most strictly characteristic. These are enumerated under the four following heads:—*the state of the sleep of the individual: phantasms* or *hallucinations: annihilation of voice and voluntary motion: and disturbance of respiration.*

Under the first division, the first question to be solved is, whether the disease can attack as well in the waking as in the sleeping state. The ancients supposed that it could only take place during sleep, and some of the moderns, considering it a species of dreaming, have been necessarily led to a similar conclusion. Darwin affirms that it only attacks during very profound sleep, which he regards as an indispensable condition; Reil, on the contrary, declares that it is developed in the lightest slumbers, or, as he expresses it, in a state of *half sleep;* and Waller, likewise, who was himself a sufferer from the disease, asserts that it always makes its aggressions during sleep. Our author remarks, that he had experienced the disease in both degrees of sleep; and he seems to think that the condition of the individual in this respect exercises an important influence on the disease, impressing upon it characters to justify its division into two species, which should be carefully distinguished. The difference of opinion existing amongst authors in regard to the question under consideration, he thinks has originated in the belief, that the characters enumerated above should be regarded as pathognomonic,—a conclusion by no means admissible, but if admitted, fully competent to justify the inference. It could scarcely be possible that an individual should experience all these symptoms in the waking state; that he should feel some hideous monster sporting upon his breast; overwhelming him with a sense of suffocation; taking from him the power of calling for assistance, or giving utterance to his distress. Yet, if a more correct view be taken: if it be granted that these phenomena, though often present, cannot be regarded as constant and necessary attributes of the disease, but that there are others much more characteristic, the conflict of opinion can be easily reconciled, and the fact, that the disease can attack in the waking as well as in the sleeping state—in the day as well as in the night—fully established. This, indeed, is virtually admitted by Waller, notwithstanding the assertion to the contrary already alluded to; and it is confirmed by the authority of many writers on the subject. He admits that he had often felt the premonitory symptoms of an attack during the day, in form of a distressing oppression, and a feeling of discomfort about the heart, for the relief of which he found it necessary to make a deep and forcible inspiration, to seek the upright posture, and to walk to and fro for some minutes. Dr. Strahl confirms the correctness of this account, by a

detail of his own sufferings under the same circumstances. He re-
marks, that after taking food, having a flatulent tendency, he was
often seized suddenly with oppression and a sense of instantaneous
suffocation about the thorax, together with a painful sense of oppress-
ion about the precordia, and that he could only subdue the feeling of
immediate suffocation, by making a powerful effort to inspire. With
these phenomena, was likewise associated a degree of confusion of
intellect, rendering him unable to take cognisance of the situation in
which he was at the time. To the same point, we have also the tes-
timony of Dolæus, Schmidt, Rhodius, Johnson, Schenk, Loss, Good,
and many others. Johnson, especially, makes mention of the case of
an individual, who was so subject to attacks of incubus in the waking
state, that he experienced several in the course of the day.

The next character examined is the phantoms or false perceptions,
that in some cases haunt the patient during the attack, and constitute
so formidable an item in the amount of his sufferings. In all ages, and
amongst all classes of people, these have been esteemed the most ex-
traordinary features of the disease; and amongst the ignorant and
uncultivated, it is not at all surprising, that such phenomena should
be attributed to something supernatural, and that these phantoms, in-
stead of being considered merely as creations of false perceptions,
should be magnified into witches and demons.

Under this head, the author proposes two questions for solution:

1. Are these phantasms, or false perceptions, necessary attributes
—essential pathognomonic symptoms of incubus?

2. Under what particular circumstances do they occur?

With very few exceptions, writers on incubus have indicated phan-
tasms or false perceptions of certain objects or individuals, to which
the patient refers his sense of suffocation, as constant characters of
the disease. Amongst the early authors on the subject, Gruhling,
Hagedorn, and Osw. Grembs, form almost the only exceptions, and
many even of the most recent, by confounding the false perceptions
experienced in dreams, in which such images are depicted to the in-
dividual, with night-mare, have adopted a similar conclusion. Waller,
especially, seems to have edified his readers by a grave detail of
dreams and spectral illusions, in which it would be difficult to trace
even the most remote evidence of incubus; and by confounding these
with those cases of night-mare in which such phenomena really occur,
he has persuaded himself into the belief that they are constant charac-
ters of the disease. Dr. Strahl, on the contrary, denies the validity
of such a conclusion, upon the following grounds: 1. The authority of
several writers on the subject, who have not detailed these false per-
ceptions amongst the category of phenomena observed in the disease.
2. The fact that incubus often attacks in the waking state, and con-
sequently cannot be attended with such a symptom. 3. From his own
experience and that of Waller. He hence concludes, that the percep-
tions of such images does not constitute essential characters of the
disease, but that they are mere accidental concomitants; and as re-
gards the circumstances under which they do occur, he thinks this

can only happen during very profound sleep.   He is led to this con-
clusion by the fact, that to enable these phantasms to be perceived by
the individual, the brain must be in a state of comparative tranquillity,
which cannot be the case except when the sleep is profound; hence it
is that such phenomena are seldom observed in inveterate cases of
incubus, in which deep sleep can seldom be realized, but are con-
fined almost entirely to its milder forms, or the early stages, before
the affection reaches that degree of intensity which precludes profound
sleep.

Abolition of speech and voluntary motion, which have likewise been
enumerated as characters of incubus, cannot be regarded as pathog-
nomonic symptoms.   Waller mentions the case of a carpenter who,
during the attack, struggled violently and cried out with a loud voice;
and the same phenomena occurred in his own case.   An instance is
also reported by Doläus of an individual who screamed aloud during
an accession, and threw himself from the bed; and Dr. Strahl mentions
the case of a clerk, who, during the attack, screamed so loud as to
rouse all who slept in the adjacent part of the house.   He remarks,
moreover, that in the most violent paroxysms which he himself suf-
fered, he could not refrain from seeking the upright posture and crying
out.

Oppressed respiration, however, may be regarded as one of the
most constant concomitants and essential characters of the disease;
our author indeed seems to consider it, when proper attention is paid
to its peculiarities, as strictly pathognomonic.   The difficulty of re-
spiration, which he considers characteristic, differs from every other
species of orthopnœa or asthma, in this, that it seems to proceed from
the precordial region, and disappears almost instantaneously on waking,
leaving little or no traces of embarrassment of breathing after a free
inspiration is accomplished.   Dr. Strahl remarks, that "it is always
associated with an intensely painful sense of oppression about the
precordia, and that *no case can be legitimately considered as one of
incubus, in which this symptom is not present.*" p. 55.

Dissection has not contributed to elucidate the nature of this affec-
tion.   The case reported by Bonetus, in which water was found in
the fourth ventricle, was probably not one of incubus; and ulceration
of the pancreas, mentioned by Highmore; disorganization of the lung
and diaphragm, by Etmüller; destruction of the intercostal, phrenic,
and recurrent nerves, observed by Doläus; and aneurism of the left
carotid artery, reported by Morgagni, do not seem to have any natural
or intimate affinity with the disease.

We shall now pass to the author's exposition of the etiology of
incubus, omitting the historical details, in which he has passed in re-
view the principal hypotheses which have been advanced in regard to
its pathology by writers, both ancient and modern.

To enable us to follow the author in his remarks on this part of the
subject, it will be necessary to recall the symptoms which have been
already detailed as characteristic of the prodrome of the disease, and
especially those which Dr. Strahl lays down as pathognomonic.   The

latter, are "*a fulness or oppression about the precordial region, asso-
ciated with a sense of suffocation, taking place suddenly, and disap-
pearing after a short duration.*"

During the healthy state of the digestive function, it is well known to
physiologists, that free gaseous products are generated in considerable
quantity in the stomach. These occasion no inconvenience so long
as the function of the organ retains its healthy play; but when digestion
becomes impaired, the result is very different, especially when such
derangement is associated with a tendency to flatulence. Here the gases
are not only developed in such abundance as to offend by their quantity,
but they are likewise altered in quality, and sometimes prove highly
mischievous from this cause. Painful spasmodic affections of the bowels,
vertigo, general uneasiness, syncope, and even apoplexy, are some-
times excited by the disturbance originating from this source. These
effects, the author thinks, can only be induced by a spasmodic constric-
tion closing two remote points of the alimentary canal, in consequence
of which, the intermediate space becomes preternaturally distended
by the air, giving rise to congestions of blood, and overstretching or
laceration of the delicate nerves. The painful distension is removed
as soon as the spasm which closes the canal yields, and allows the air
to escape from its place of confinement.

These views are applied to the explanation of the pathology of in-
cubus in the following manner:

"Those who are affected with this disease," Dr. Strahl represents, "have feeble
digestive powers, and are very liable to flatulence. The alimentary canal becomes
spasmodically closed at some point, so as to intercept the passage of the flatus
downwards; the air under these circumstances becomes more rarified, under the
influence of the warmth—is forced upwards towards the stomach, and gives rise
to a preternatural degree of distension of that organ. The influence exercised
upon the delicate blood-vessels and nerves which exist so abundantly in the coats
of the alimentary canal, furnishes a rational explanation of the spasmodic pheno-
mena of incubus already detailed. But in addition to this, it should be remarked
that this forcible dilatation of the stomach impedes the free motion of the dia-
phragm, and prevents it from descending readily in the act of inspiration. This
explains the difficulty of respiration; and while the individual instinctively makes
a violent effort to accomplish a deep and full inspiration, the lung being so situ-
ated that it cannot be adequately distended with air, this effort only tends to aug-
ment the distension about the precordia, instead of affording relief. It follows
from this, that the lungs, resisted by the diaphragm, are incapable of being dis-
tended to the extent of their natural capacity; and the repeated attempts of the
individual to overcome the distressing sensation of suffocation, by reiterated
efforts to accomplish a deep inspiration, give rise necessarily to a greater disten-
sion of the stomach by the air contained in that organ and the adjacent portion of
the intestine. To this cause may be legitimately traced the other symptoms of
the disease, as the irritated pulse, the tremors, &c., which are occasioned by the
violent distension of the nervous filaments and the congestion of blood in the
affected organ; or more properly, they are the consequence of violent irritation of
the ganglionic system of nerves, which is the source of these spasmodic actions."
p. 68.

Thus far the explanation is designed to apply to the prodrome of
the disease only. To elucidate the phenomena exhibited during an
attack developed in its fullest intensity, other circumstances must be
taken into the account. In the production of this result, the chief
feature, according to our author, is a preternatural degree of disten-

34*

sion of the œsophagus. This he attempts to prove by the following arguments.

If, under the circumstances indicated, the patient falls asleep, the gases confined within the stomach are more and more rarified by the heat of the organ, perhaps also by the influence of the exalted nervous susceptibility, and increasing in quantity at the same time, they are forced upward into the œsophagus, forcibly distending that organ, and thereby compressing the trachea. As soon as this pressure has reached its highest pitch, the individual cries out, suddenly seeks the erect posture, and makes a mechanical involuntary effort of deglutition to force the air which occasions the distension of the œsophagus downward into the stomach, by which the sense of suffocation is completely removed, or he succeeds in throwing off the air from the œsophagus by a free eructation. Should the patient again fall asleep, and the two points of the alimentary canal still remain constricted, the attack will be renewed, and will be repeated again and again, until by the force of the distension the spasm is overcome.—p. 69.

From these considerations, Dr. Strahl infers that there is a strong analogy between the phenomena of globus hystericus and incubus; the choaking sensation occasioned by the perception of a ball rising in the throat in the former disease, being like the feeling of suffocation in incubus resulting from the over distension of the œsophagus by air; and the distress in both cases being often overcome by free eructations of gas. The same circumstances lead him to infer that the disease is one of a spasmodic character, and in corroboration of this view, he invokes the following arguments:

1. "The attack takes place suddenly and subsides as promptly—circumstances not observed in any other than spasmodic diseases.

2. "Hypochondriacal and hysterical individuals, also children, and persons naturally predisposed to spasmodic disease, are those most liable to incubus.

3. "Depressing passions and emotions, as anger, grief, fear, preternatural evacuations, especially of semen, blood, &c., predispose to the disease, and hasten its developement. All these causes have a tendency to excite spasmodic action, by lowering the tone of the vital powers of the muscles, and increasing morbid nervous susceptibility.

4. "It has been seen, that in inveterate cases of the disease, the individual is affected with spasms in various parts of the body; such as tremors in the extremities and about the pharynx; shocks like those occasioned by electricity, and tension of the whole body, all of which clearly indicate the essential character of the disease.

5. "Experience teaches that spasmodic affections are prone to become confirmed, and to be renewed without any apparent exciting cause. Hence we find that incubus may continue its attacks night after night, even under a regulated diet, and the observance of other prudential measures, until by an invigorating regimen, and the use of proper medicines, the preternatural nervous susceptibility is reduced.

6. "The same phenomena are observed in this disease as in globus hystericus. In the latter, there is a rumbling in the vicinity of the œsophagus—in the former about the pylorus. Both are attended with eructations of air towards the termination of the attack, which is followed by sensible relief, while in the early stage, there is in both affections a distressing rigidity of the body.

7. "The precordial region, previous to the attack, is preternaturally sensitive, the respiration somewhat embarrassed, and the epigastrium distended."—71.

After these reflections, the author establishes the corollary, that "the immediate cause of incubus is spasm, and that its essence consists in a preternatural degree of inflation of the stomach, with simultaneous distension of the œsophagus."

Notwithstanding the arguments which Dr. Strahl has brought to bear on this question, and the collateral evidence, which has for its support the authority of others, we are by no means satisfied with all the items of his pathology. That inflation of the stomach may, and often does, occasion some of the phenomena here attributed to it, we will not deny. We will also concede that in hysteria, as well as in incubus, there is often reason to suspect the kind of disturbance in the œsophagus already alluded to, and an extension of its influence to the adjacent organs. Yet, with all these concessions, we are not prepared to grant the inference that the gaseous distension of the stomach and œsophagus is an indispensable condition in incubus. We are confident that we have felt all the horrors of that disease, when no such accumulation or distension existed, and our own experience emboldens us to assert, that disturbance of the stomach, irritation, or some perverted action of the pneumogastric nerve perhaps, by extending its influence to the organs of respiration and circulation, also to the cerebrum, is far more frequently a cause of night-mare than the inflation of the stomach, to which Dr. Strahl attaches so much importance in his pathology. But as the author, with the view of sustaining his views, has entered somewhat extensively into the investigation of the morbid generation of gaseous products in the living body, it may be well to notice some of his inferences upon this point. This we shall do without stopping to examine the experiments upon which he predicates his opinion, as they pertain more properly to the domain of physiology, than to the subject under consideration. It will be sufficient, indeed, for our purpose, to state the propositions which Dr. Strahl has deduced from the investigation of the subject, as they will serve to convey an adequate expression of his sentiments. They are as follows:

1. The opinion that air cannot exist in the blood without jeoparding the life of the individual, is entirely false. It is based upon experiments made on animals, in which it is found, that the introduction of atmospheric air into the blood produces sudden death. These experiments, however, are not conclusive, since the artificial and rude introduction of a certain quantity of atmospheric air into the blood-vessels, differs essentially from the spontaneous generation of air in those vessels. The common opinion is, moreover, refuted by the experiments of Nysten, who found that even a large quantity of air might be introduced into the circulation without occasioning any bad consequences, provided the experiment was conducted cautiously.

2. The generally received doctrine on this subject is contradicted by experience. Repeated post mortem examinations having shown, that large quantities of air often exist in the blood-vessels after death, under circumstances where its presence could not be attributed to putrefaction, it follows that this air must have existed in the circulation during life. The experiments of Haller prove, moreover, that nearly all the animal fluids, in their healthy state, contain a considerable quantity of air, and that it exists also in the natural cavities; as the bladder, uterus, thorax, &c.

3. Inasmuch, therefore, as it is established, that air exists within the blood-vessels as a natural integrant part of the circulating fluids, it cannot, with propriety, be regarded as a pathological phenomenon, but attributed to a process strictly physiological.

Still further to corroborate this proposition, the author argues, that as it has been proved by the experiments of Sanctorius, five-eighths of the entire nourishment taken in the course of the twenty-four hours, is thrown off by the skin, in form of insensible perspiration, a very great quantity of air must be conveyed into the system with the aliments, which after passing through the round of the circulation, is thrown off by cutaneous exhalations. He should have remembered, however, that the insensible perspiration is not a gaseous fluid, but that it chiefly consists of watery vapour.

4. We have shown, therefore, that the digestive process should be regarded as the source of these gaseous products, and that the performance of this act is necessarily associated with the developement of a considerable quantity of air.—p. 127.

Having laid down these propositions in relation to the healthy generation of air in the human body, Dr. Strahl next proceeds to explain the manner in which this process may be influenced by certain pathological states of the system. He thinks that even when an unusual quantity of gas is developed by flatulent articles of diet or other causes, no inconvenience will arise, provided the skin possesses its integrity of function, so as to be able to eliminate the product by insensible perspiration. We have already adverted to this point, and may now repeat that the author's explanation is not borne out by a single fact, either physiological or pathological, but is contradicted by evidence that cannot be refuted. But to explain more fully the views of the author, it will be necessary to examine his speculations somewhat more in detail. He conceives that where the gaseous products generated by the process of digestion accumulate in considerable quantity, owing to the use of certain articles of diet, especially in individuals possessing great nervous susceptibility, the delicate nerves of the stomach, and with them the skin, are irritated, occasioning spasmodic contraction of the alimentary canal, which prevents the gas from escaping by the natural outlets of that tube, and constriction of the skin, rendering it impossible for it to be thrown off by cutaneous transpiration. In this state of the system, all these consequences may be induced, even when there is no increase in the quantity of the gases formed in the alimentary canal, and under the use of the blandest articles of diet, the preternatural susceptibility of the nerves of the stomach being so great, that they are morbidly influenced by causes, which, under other circumstances, would occasion no derangement, and their sympathy being so intimate with the skin, the latter is readily made to participate in the perverted actions taking place in the alimentary canal. In either case, the mischief arises from the confinement of the wind, either by spasmodic constriction of some portion of the alimentary canal, a preternatural constriction of the skin, or the conjoint agency of both these causes; this spasm

and constriction being excited by the irritation of the too sensitive ganglionic nerves, and, under such circumstances, the irritation of these nerves is often reflected into those pertaining to the cerebro-spinal system, thus proving instrumental in the developement of a train of spasmodic and other anomalous symptoms, which we observe in hysteria, hypochondriasis, and other nervous diseases.

We have thus endeavoured to interpret, as briefly as possible, Dr. Strahl's views upon this point. It will be seen that he attaches great importance to the mere confinement of the gases generated during digestion within the system, referring to that cause, directly, the chief influence in the production of the morbid phenomena under consideration. We are willing to concede that much distress often arises from this cause—that it may even produce many of the leading phenomena of hysteria, incubus, &c. Yet we are well convinced that all these distressing consequences are often induced—perhaps in a majority of instances, independently of such confinement of air, and entirely by preternatural nervous irritation, and a full play of morbid sympathies between the different functions, by which they become perverted. Even when large quantities of gas exist, notwithstanding its presence tends to modify the train of morbid phenomena, it should, we think, rather be regarded as an accidental concomitant, than an essential element in the disease itself. Our sentiments, therefore, cannot square with those of the author, and we do not hesitate to express our conviction, that in endeavouring, as he has so strenuously, to establish a gaseous pathology of nervous diseases, and of incubus in particular, he has suffered the substance to escape, in grasping at the shadow.

We must now pass to the consideration of the treatment of the disease. Our author, setting out with the assumption, that the essential character of incubus consists in exalted sensibility of the ganglionic system of nerves, associated with a disposition to flatulency, and a deranged state of the cutaneous function, lays down the three following therapeutical indications:—

"1. To quiet the exalted sensibility of the ganglionic nerves.

"2. To prevent the distension of the alimentary canal by flatus: and,

"3. To restore the healthy function of the skin."—p. 148.

He considers it of primary importance to overcome the spasms and cramps of the stomach, but remarks in relation to the ordinary spasmodics and narcotics, which it is customary to employ under such circumstances, that they had almost constantly failed to afford any relief. Opium in small doses was productive of no benefit, and in large portions, it was found to be decidedly mischievous. The essential oils and other carminatives, apparently so strongly indicated to promote the expulsion of the flatus accumulated in the stomach and intestines, failed altogether to produce any good effect; and neither the oils of mint, cajeput, anise, or even chamomile, afforded the slightest benefit, but seemed to be rather injurious by increasing the irritation and spasm. This failure, Dr. Strahl very properly attributes to the fact, that the susceptibility of the nerves of the stomach

is preternaturally exalted, and that they are consequently still more irritated by those antispasmodics which are endowed with stimulating properties. It is evident, that to allay the spasm, the nervous susceptibility must be reduced, and to effect this end, remedies possessing properties exactly the reverse of those existing in stimulating antispasmodics, are indicated. Our author informs us, that after having been disappointed in all the ordinary means, he was accidentally, and without any regard to principle, induced to make trial of one of a common domestic character, from which he derived the greatest benefit. This remedy was a cup of chamomile tea, immediately after taking which he experienced a gentle rumbling in the region of the pylorus, followed almost immediately by free gaseous eructations, by which the respiration was rendered easy, a general relaxation induced, followed by refreshing sleep and a forgetfulness of the previous distress. After making this discovery, he continued to realize the good effects of the remedy, which he continued to take every evening for four weeks; and it seldom happened that the obstinacy of the spasms was sufficient to withstand the influence of the article. He remarks, that the infusion should be merely strong enough to present a light yellow colour, and that it should be taken as hot as it can be swallowed. That the efficacy does not depend upon the heat alone, he says, he is well satisfied, since he had taken copious draughts of hot water without realizing any benefit.

Waller, who, as previously stated, was likewise a victim to this painful disease, speaks in high terms of commendation of carbonic acid. Dr. Strahl also seems to repose considerable confidence in this article, since he remarks, that at one period, during which he used freely the ordinary white beer of Berlin, which contains a large quantity of carbonic acid gas, he not only remained exempt from his usual attacks of night-mare, but also found his digestive function much improved. Frictions over the region of the pylorus with the hand, the application of heat in a dry form to the abdomen, rising from bed and walking about the room, &c., are means recommended by the author; and where the disease assumes a form of greater intensity, the patient may be put into a warm bath, in which he should remain about three quarters of an hour, entertained by agreeable conversation, or soothed by gentle music, taking care, however, to avoid sleep. Previously to entering the bath, the bowels should be opened by a clyster, composed of an infusion of chamomile, with a little oil and common salt. Assafœtida, however, which it is so much the custom to add to enemata under such circumstances, Dr. Strahl asserts should be carefully avoided. Warm and stimulating pediluvia, rubefacients, stimulating liniments and ointments, antispasmodic and aromatic plasters, setons, issues, &c., he affirms are altogether useless, and often prove injurious, notwithstanding dry frictions continued for some time are found serviceable.

Dr. Strahl has given detailed directions in relation to diet, open bowels, exercise, clothing, warm and cold baths, sleep, mental occupations, &c., which we consider highly judicious; but as they are too

long to be quoted, we shall pass them over with the remark, that in this, as in most other nervous diseases of an analogous character, attention to such rules must constitute the principal dependance of the practitioner. We consequently find that nearly all the therapeutic precepts laid down by the author, are comprised under these several heads, and that his treatment is almost entirely hygiénic; pharmaceutical remedies forming but a slight item in his curative procedures. In this, we think Dr. Strahl has displayed much accuracy of judgment, and his authority is the more entitled to our confidence from the fact, that he was himself the subject of treatment, and was from that circumstance better qualified to establish proper indications, and to make an accurate appreciation of the influence of remedies employed for their fulfilment. On this account, chiefly, we have been induced to notice his labours, and notwithstanding we are forced to acknowledge that we are not satisfied with all the items of his pathology, we can, nevertheless, recommend the present monograph, as containing a very full, and in many respects, satisfactory account of the disease of which it treats. E. G.

ART. XII. *Lectures on subjects connected with Clinical Medicine.* By P. M. LATHAM, M. D., Fellow of the Royal College of Physicians, and Physician to St. Bartholomew's Hospital. London, 1836, pp. 322. 12mo.

Clinical medicine has the same relation to medical science in general, that experimental has to theoretical chemistry. It is, in fact, medicine *par excellence* to which the other branches are only subservient. Few, if any, we presume, would be found disposed to deny the truth of this proposition, and yet in practice it seems to be entirely disregarded. In this country, clinical instruction can hardly be said to form a part of medical education, and even in England the state of things is not much better. It is indeed expected that every student, during a part of his prescribed term, shall walk, as it is called, the ward of a hospital. But what advantage does he reap from it? Where is the student of sound sense and possessed of a just conception of the objects and ends of clinical instruction, who will not tell you that the amount of information which he obtained in this way was paltry and contemptible, at least in comparison with what it might have been under different circumstances? What well regulated mind is not disgusted at witnessing a crowd of students rushing along the wards from bed to bed, elbowing, pushing and climbing over one another, each desirous to catch a glimpse of the patients as they pass; and if perchance the company should be arrested by the presiding spirit of the scene, and they should close in solid phalanx

around the bed of some unfortunate "interesting patient," what information do they obtain? Are they made acquainted with the previous history of the case, with the various symptoms under which the patient labours, or with the grounds upon which the prescriber founds his diagnosis, his prognosis and his treatment?—no. These, the legitimate subjects for a clinical lecture, are, as a general rule, passed over with a hasty remark or two, and in place of them, the student is made to listen to a declamation upon some medical subject which no one could for a moment suppose was intended for *clinical instruction*, did he not listen to it in the wards of a hospital. The patient around whom they are assembled is not, strictly speaking, made the subject of discourse, but some one point in his case is made to serve as a text for a string of general remarks in which the poor patient and all that belongs to him is entirely forgotten. Suppose, for example, that the patient before you is affected with a disease, in the course of which, among other symptoms, a diarrhœa occurs. You need not expect to be informed of all these symptoms—of their relative importance, or of the conclusions which may be drawn from them in regard to the pathological states of the various organs, &c., but you will probably be regaled for the space of ten minutes with a profound discourse on inflammation of mucous membranes, or the nature of fevers, the exanthemata or cholera, and you may think yourselves happy if you escape the contagion of the plague and the sweating sickness. Many, if not most of the absurdities observable in the present plan of clinical instruction are in a great measure owing to the defective system of hospital management; for how is it possible that any man can examine as he should do in the short space of one hour, all the cases which present themselves to his notice in the wards, especially when he enters them only twice in a week. Before clinical instruction can be placed upon a solid basis, a greater number of hospitals must be established, the attending physicians must make daily visits to them, and moreover, must spend a sufficient time in the wards to make a thorough examination of all the cases which present themselves, so that the student shall be enabled to study the phenomena of the disease by a direct appeal to nature, and to follow from day to day the progress of each case. But before this is likely to be accomplished, the great value and importance of clinical medicine must be better understood and appreciated.

The work of Dr. Latham is composed of a number of lectures which form the first of a series delivered by him at St. Bartholomew's hospital. Their chief object is to give the student such advice as will enable him to pursue with the greatest advantage his inquiries at the bedside of the patient; but besides this they contain many valuable remarks in relation to medical education generally, and especially clinical instruction. The first lecture is entirely occupied with the general consideration of the two last mentioned subjects. He first considers the question, "what is it, and how much is it, that a student ought to know, before he can betake himself with effect to the observation of real disease, and hope to acquire a practical skill in

treating it?" For this purpose he thinks that nothing more is abso-
lutely necessary than a good general education and an intimate ac-
quaintance with those few branches only, which have a direct and
practical bearing upon the subject. He ridicules, and we think
with justice, the disposition on the part of medical and other teachers
to blazon forth a vast array of preparatory studies as *indispensable* in
order to fit a man for the practical duties of his profession.

"We, too, (i. e. Physicians) conceive that it befits our dignity to magnify our-
selves at certain seasons. The commencement of a session is usually the time
chosen; and then, what a crowd of wonderful things are marshalled by authority
around the entrance of our profession! And through this crowd, it is implied,
every man must press his way before he can gain admission, as if we wished to
guard and garrison ourselves against invaders, rather than to gain good and
useful confederates! In the affair of literature are reckoned Latin, and Greek,
and French, and Italian, and German. In the affair of science, mathematics,
and metaphysics, and mechanics, and optics, and hydraulics, and pneumatics,
mineralogy, botany, zoology, and geology. Such are the portentous forms that
guard the threshold. But farther onward are placed anatomy, human and com-
parative, and morbid; physiology and pathology; chemistry, general and phar-
maceutical, and materia medica; surgery, theoretical, clinical, operative, and
opthalmical; medicine, theoretical, clinical, obstetrical, and forensical."   *
*   *   *   *   *   *   "Now I do protest in the name of common sense
against all such proceeding as this. It is all very fine to insist that the eye can-
not be understood without a knowledge of optics, nor the circulation without
hydraulics, nor the bones and the muscles without mechanics: that metaphysics
may have their use in leading us through the intricate functions of the nervous
system, and the mysterious connexion of mind and matter. It is a truth; and it
is a truth also that the whole circle of the sciences is required to comprehend a
single particle of matter: but the most solemn truth is, *that the life of man is three-
score years and ten.*" pages 8 to 10.

These remarks are but too true, and deserve our attentive consi-
deration, especially at the present time, when the subject of medical
education occupies so much attention. That the system may be much
improved is true, but this will not be accomplished by extending the
regular course of study over a vast field of accessary branches, but
by taking care that those already taught should be taught more
thoroughly and more practically. Preliminary education is chiefly
important as a means of training the mind to habits of careful obser-
vation, deep reflection and cautious reasoning, and as such belongs
entirely to the department of general education. But this general
education accomplished, what are the branches of science which it is
necessary for the student to make himself *intimately* acquainted with.
Most certainly they are few, and those only which bear more or less
directly upon his practical duties. If we would exalt the character
of our profession and render its members more respected, we should
endeavour to make them wise rather than learned; to induce them to
become profoundly acquainted with its practical duties, and to con-
sider the study of the phenomena of disease at the bedside, as the true
science of medicine, rather than those accessary branches which are
but too often so looked upon. Here lies the great source of diffi-
culty.   Practical medicine is by many not regarded as a science, but
as an art in which a few general principles received since the time of
Hippocrates are to be put in operation by the practitioner according

to his own experience; not a scientific experience however, but that experience of habit and tact, the possession of which constitutes a good nurse or attendant. That this is the wretched position of many members of the profession cannot be doubted, and arises chiefly from this circumstance, that they were never taught clinical medicine as a science, and could hardly be made to believe in its existence. All their experience has been picked up without method, and consequently they have no definite, precise and well grounded opinions upon any practical subject. To exalt the character of the profession, it is not necessary that its members should be metaphysicians and comparative anatomists, and natural historians, and nobody knows what else besides, but that they should be scientific physicians, by which I mean, men who regard medicine *itself* as a science and not as a trade. But this can never be, until clinical instruction is regarded as the most important and essential feature of medical education. Who would expect to acquire even a general knowledge of chemistry, by attending lectures where the objects with which it is conversant were not presented to the eye, and its most important principles elucidated by numerous experiments? The same may be said of materia medica and anatomy. But are not, as our author observes, medicine and surgery equally conversant with objects presented to the eye, and ought they not to be learned by the contemplation of those objects? Yes.

"But in the lecture-room these objects cannot be constantly present, so as to keep pace with the instruction, and be appealed to as proofs. Description, therefore, is made to supply their place. Description, however, is a poor substitute; for it is absolutely unintelligible, except to those who have some acquaintance with the reality.

How then is medical and surgical instruction to be conducted, so as to make it answer its purpose more effectually? By keeping its real objects more, and as much as possible, in view: and as those objects cannot be brought to the student, the student must be brought to them. As he cannot see them in the lecture room, he must seek them in the wards of the hospital; and there he must seek his instruction too, if he is to obtain any. And even *these* he will find it difficult enough to learn with the objects before his eyes."—p. 23, 24.

Our author opens his second chapter by some remarks upon hospitals. He observes that knowledge is perpetually running to waste there for want of labourers to gather it, and states, as the result of his observation, " that five out of six of those who profess to attend the practice of this hospital (St. Bartholomew's) never watch a single case of disease through its entire course during the whole period of their pupilage." This observation is true in the main of our own country as well as of England; and we agree with Dr. Latham in attributing it rather to a deficiency in the discipline to which students are subjected, than to a systematic disregard on their part of things most essential to their advancement.

He thinks, further, that considering the limited period which students can devote to their education, a great deal too much is required of them, and, consequently, a great deal of their information is superficial. The necessity of attending a multiplicity of lectures, is so pressing upon the student's mind and time, that he has neither attention nor leisure left to study profoundly the phenomena of dis-

ease and the effects of remedies. These remarks are inapplicable to our own country, for with us the number of branches taught are far from being too numerous; nevertheless, the same effects are produced, because the prescribed course of study is so arranged, that the time of the student is entirely occupied with attendance upon lectures during a large part of the year. He cautions the student against mistaking the intention of systematic lectures on the theory and practice of medicine, or of allowing their minds to rest in them for purposes which they are not intended to serve. He very properly regards them as introductory, and only introductory to knowledge which is to be acquired by other means. The means in question are continual intercourse with human beings who are the subjects of diseases. This intercourse is at first repugnant to the feelings of most students, and is gone into from a sense of duty; but soon an interest in the subject is excited, which is enlivened by the restless spirit of science, and afterwards, as our author observes, becomes "an excitement, and then a pleasure, and then the deliberate choice of the mind." He goes on to describe the exact method in which clinical medicine should be prosecuted, and first describes the course which he himself pursues as an instructor. We shall transcribe the greater part.

"I have been physician here eleven years. Having no formal lectures to give, I have considered my business to be expressly in the wards of the hospital; and I have thought myself expressly placed there to be a *demonstrator* of medical facts. * * * * * * In prosecuting this my duty, I have betaken myself to the hospital at an early hour; and I have had a purpose in so doing. I have desired to meet the students before their minds were pre-occupied with other things; that, among the interfering demands of other objects which arise in the course of the day, they should not have to catch a moment for that which I consider is the greatest of all—to steal a brief interval between lecture and lecture, and give it to that to which all lectures, and all the knowledge conveyed in all lectures, is but subsidiary and subordinate. * * * * * * My visit to the hospital has occupied, generally, two hours; sometimes a little less, sometimes a great deal more. * * * * * But in this business of clinical instruction, I have not been the only instructor, nor have the means of information been limited to what I say or point out. * * * * * * No; it has been my chief care to put every thing about the sick in the point of view most favourable for being well observed; that circumstances might become didactic; that they might give their own intimations, and speak to you themselves in their own tongues; and that thus you might accept knowledge neither from me nor from any one, but gather it fresh from the reality."—p. 44, 45.

Dr. L. thus describes his mode of examining his patients, and the method which the student should adopt in taking the history of cases. But he does not consider that clinical instruction is merely and solely occupied in directing observation to facts, but that it should be so ordered as to assist the mind in estimating their value. Thus he admits the student to share in the deliberations upon all the particulars of a case, while he endeavours to assort them and bring them together, and make them yield all the light they are capable of throwing upon the nature and seat of the disease.

"The progress of the human mind is evermore from particulars to generals; and he that would inform others must be careful, in the manner of his teaching, not to transgress the order of nature. Full of this important truth, I must first

seek to rivet you to the contemplation of individuals, and only venture to unfold to you any general principles, which I may conceive myself to have reached, either of pathology or practice, in proportion as I judge you able to authenticate them by your own growing experience."—p. 58.

Dr. Latham next offers some sensible remarks in regard to the books which a student should read and the studies he should pursue simultaneously with his attendance in the wards of the hospital, and especially warns him against considering elementary works on the practice of physic, in any other light than assistants to his own observation. Speaking of nosologies, he observes,

"Nosologies teach the student 'practice' in no other sense than that of enabling him to seem to have a knowledge which he has not in reality. They qualify him to pass his examinations, not to understand, and to treat disease."—p. 66.

He cautions the student also against devoting much of his time to that class of medical books, directed to the consideration of particular diseases, especially with reference to their treatment. To this class belong the great treasures of medicine, together with every thing that is wretched in the literature of our profession, and " the bad practical works," says Dr. L., " have a mighty predominance of quantity over the good." There are other works again of great merit, but which, he thinks, the student would do well to avoid, because they are so completely pervaded by certain hypothetical views, that the mind of a beginner would almost certainly be biassed. Witness the productions of Broussais and Abernethy, the latter of whom, in his public lectures, was so eloquently enthusiastic in favour of his peculiar doctrine, "the constitutional origin of local diseases," and so successful in throwing ridicule upon every system but his own, that his pupils accepted his doctrine in all its fulness. "We should have been ashamed," says Dr. L., "to do otherwise. We accepted it with acclamation, and voted ourselves by acclamation the profoundest of medical philosophers, at the easy rate of one half hour's instruction. We never left his lecture room without thinking him the prince of pathologists, and ourselves only just one degree below him." In general, our author recommends the perusal of such books as are essentially pathological, and from which the pupil will acquire a knowledge of morbid processes and morbid structure, without which the results of clinical observation must be very imperfect. To obtain a thorough acquaintance with diseases, it is not merely necessary that we should carefully observe their phenomena as exhibited during life; we must examine the condition of the organ after death; we must bring chemistry into requisition to inform us of the nature of the fluids; and by a careful comparison of the facts derived from all these sources, we will frequently be enabled to arrive at important results in regard to the nature and seat of diseases. Dr. L. illustrates this position by several examples of disease, in which the most accurate examination of the symptoms during life, and of the organs after death, considered separately, would not enable one to arrive at any satisfactory conclusion in relation to the nature of the affection, but where the comparison of the facts derived from both these sources,

and taken in connexion with the functions of the organs chiefly affected, leads directly to a clear view of the case.

The kind of information then which he thinks the student should especially aim at acquiring, is a practical acquaintance with the phenomena of disease, and the effects of remedies, with the altered structure of the organs, and with those conditions and properties of the fluids and tissues which chemistry and experiment have unfolded to us—add to this an intimate acquaintance with the nature of morbid processes, viz. inflammation and its various results, cancerous degeneration, &c., and we have an outline of that knowledge which it is absolutely requisite for the medical practitioner to possess.

The fifth chapter contains many interesting reflections in relation to the proper objects of medical investigation and the value of medical facts. He cautions students against permitting mere assumptions and abstractions to assume in their minds the place of facts.

The following observations are exceedingly just and worthy the attention of all, whether students or others, who undertake to record medical cases.

"Bear in mind, then, that abstractions are *not facts;* and next bear in mind that opinions are not facts. To record that a patient is *better* to-day and *worse* to-morrow; that he is at one time doing *well* and at another doing *ill;* it is to give a *summary opinion* upon the facts, not the facts themselves. * * * If on going round the wards of the hospital, I had it punctually recorded that this, that, and the other patient had a peritonitis, a nephritis, or a hepatitis; and that, day after day, this, that, and the other patient were better, worse, or just the same; and if, day after day, I were to order bleeding, blistering, or purging, as the case might require, and thus you were to witness numerous instances of recovery, you would not reap the slightest benefit from me and my pretended instruction, although you went round with me for a twelvemonth. For this would be to keep industriously from your notice every thing in the shape of a *fact,* by which you could estimate the nature and progress of the disease, or the operation and effect of the remedy."—p. 116, 117.

Real facts are those which are directly referable to our sensations and perceptions, and even in the reception of them it is necessary to exercise great caution. The mind may be biassed in their observation by means of some favourite theory which has early got possession of it. The importance of some circumstances may be greatly magnified; others may be thrown into the shade, and others again altogether omitted.

Our author next proceeds to the consideration of the doctrine of symptoms, which he divides into direct and indirect, or those which belong immediately to the part affected, and those which declare themselves through the medium of other parts. The direct symptoms are alone treated of in the volume before us. They are divided into those which belong to the sensations and functions of a part, and into those which immediately regard its structure. The former are dismissed with a few general observations. The latter, or those which immediately regard the structure of a part, as far as regards internal diseases, are chiefly derived from auscultation, for the ear is almost the only sense which can be brought to bear directly upon the internal organs.

35*

Dr. L. prefaces his observations upon the physical signs, by remarking that the language of auscultation is not yet uniform, and that therefore he has employed that which has become current at St. Bartholomew's hospital. All those sounds usually called râles or rhonchi, and which are produced directly by an altered condition of the bronchial tubes or pulmonary vesicles, he divides into dry and moist sounds. The dry sounds he subdivides into rhonchus and sibilus, and the moist he calls crepitations. It is true that the language of auscultation is not altogether uniform. That which was employed by Laennec has been slightly modified by later authors; but in the main it has been fully adopted by all those most conversant with the subject. We have no where seen such a wide and uncalled-for departure from the generally received nomenclature as in the work before us. The word rhonchus has hitherto been employed to denote all those sounds which Dr. L. includes under the three heads of rhonchus, sibilus, and crepitation, and has been used as synonymous with râle or rattle, whereas he has restricted it to the designation of a comparatively unimportant sound, the *sonorous rhonchus* alone. What he calls sibilus is the same with the sibilant râle of most authors; and under the head of crepitations he includes the various forms of mucous and crepitant râles. How it is that a nomenclature so entirely different from that adopted in other places should have become current at St. Bartholomew's, is not readily accounted for. It seems to us a very arbitrary one, and calculated to convey wrong impressions in relation to the character and value of the different sounds. The sibilant and sonorous rhonchus most frequently occur together, and indicate the same general condition of the bronchial mucous membrane, and yet our author has applied to each, as before observed, a separate generic term; whilst on the other hand he has confounded together under the head of *crepitations* a variety of sounds, which have heretofore been accurately distinguished, and are in fact totally distinct from one another in their character, in their seat, and in the cause producing them. Our author seems to have a great affection for what he calls sibilus, and says that the parts which produce it and those which produce the respiratory murmur are the same, and consequently that the two sounds are incompatible with each other and cannot coexist. Now the respiratory murmur has its origin, strictly speaking, in the *pulmonary vesicles* alone, whilst the sibilant râle, which resembles, as its name imports, a low whistle, must, from the very nature of the sound, be produced in the *bronchial tubes*, and in them alone. It differs from the sonorous râle chiefly in this, that it is produced in bronchial tubes of small diameter. The sibilus and sonorous râles are frequently heard together, and indicate an inflammatory or congested condition of the bronchial mucous membrane, which is accompanied with but little secretion. Dr. L. thinks that sibilus has been improperly regarded as a sign of secondary import, and that it possesses great value in itself totally independent of the other sounds with which it is mostly connected. In support of this notion he brings forward two cases of disease which came under his observation, presenting the most alarming and violent symptoms,

owing entirely to a diffuse inflammation of the bronchial mucous membrane, unaccompanied *by any secretion in any stage of its course,* and indicated by no other physical sign than a mere sibilus. Such cases (even supposing the author's views of them to be correct,) must be exceedingly rare, and can be regarded in no other light than as exceptional. They are reported with so little detail that it is impossible to come to any positive conclusion in relation to them, but it seems to us highly probable that the bronchial inflammation was complicated with some other morbid condition, most probably emphysema, to which was chiefly due the great severity of the symptoms, and which a more accurate and careful examination might have made known. Dr. L. himself admits that he never saw any person die whose only auscultatory symptom was a sibilus. The dry catarrh described by Laennec is especially characterized by a great diminution of the respiratory murmur, combined with a slight sibilant râle and perfect sonoriety of the chest.

All sounds produced by the meeting and mingling of air with fluid in the bronchial tubes during the act of respiration, Dr. L. calls crepitations, and these he divides merely into large and small. He observes that "between the largest of the large and the smallest of the small, there are many intermediate degrees; and some of these may perhaps seem to deserve a name. But, for my own part, I always have had a great unwillingness to multiply names, especially when things are essentially the same, and differ only in being greater or less." Now we are as unwilling as any one to multiply names where things are essentially the same, but such is not the fact in the present instance. Some of the sounds which he has confounded together under this very inappropriate title, are not only widely separated from one another in their character as sounds, but are essentially and uniformly connected with totally different conditions of the pulmonary organs, and hence it is not only allowable but necessary to draw the line accurately between them, and designate them by different names. Practically they are easily distinguishable, for even in those cases in which they approach one another in character, the different circumstances under which each generally occurs, will serve to assist in determining their nature. Thus gargouillement or gurgling, a name which accurately denotes its character, is produced by a considerable quantity of fluid in a cavity or dilated bronchial tube: Its most common seat is near the summit of the lung. The subcrepitant râle conveys to the ear the idea of the bursting of a number of small bubbles of air of nearly uniform size—it indicates an inflammatory condition of the minute bronchial tubes accompanied by secretion, and is probably caused by the passage of air through the mucous contained in their minute ramifications. When existing to any extent, it is generally found at the *posterior inferior portion* of the lungs, and uniformly so, when occurring as a symptom of acute catarrh, according to the observation of M. Louis.

The mucous râle is intermediate between those two sounds, and results from the presence of fluid in the large bronchi. Dr. L. endeavours to impress upon the student the importance of distinguishing

between inflammation of the small and of the large bronchial tubes, as he believes, in accordance with the generally received opinion, that the former is very liable to extend itself to the substance of the lungs. Recent observations, however, have shown that inflammation of the minute bronchial tubes has not, in all probability, except in young children, this supposed tendency to extend itself. At any rate, one thing is quite certain, that acute bronchitis in adults, in which the subcrepitant râle exists, runs its course without the intervention of pneumonic symptoms.

Under the general head of crepitations our author also includes what is usually called crepitant râle, which is a true crepitation and entirely distinct from the preceding in its cause, character and seat. It resembles the crackling of salt thrown upon live coals, or more accurately still, the sound produced by tearing fine gauze. Whether this râle proceeds from the vesicles or from the structure of the lungs exterior to them is not certainly known, but it is well ascertained that it is attendant upon and always indicates inflammation of the *substance* of the lungs. The crepitant râle then is essentially and necessarily connected with a certain morbid condition of the parenchyma of the lungs, and has no connexion whatever with the condition of the bronchial tubes, how minute soever they may be.

Bronchial respiration and broncophony are considered together, as they are both caused by, and are indicative of a similar condition of the pulmonary tissue. They arise where the lungs have undergone such changes of condition as are calculated to render them better conductors of sound than in their healthy state. In illustrating this increased capability of the lungs to transmit sound, a fact of considerable value in diagnosis is alluded to by our author, viz. that the sounds of the heart are transmitted more distinctly to a considerable distance from the precordial region, when the lungs are more or less consolidated, than when freely permeable by the air; the heart at the same time being healthy, both in structure and function, as shown by the perfectly natural character of the sounds over the precordium. Bronchial respiration and broncophony are indicative of no particular disease, but are found wherever considerable condensation of the pulmonary tissue exists.

Cavernous respiration and pectoriloquy are like the preceding sounds, treated of together, as they both indicate the same condition of parts, viz. a cavity containing little or no liquid. The author notices the varieties of these sounds according as the cavity in which they are produced is larger or smaller, and communicates more or less freely with the bronchi, &c., and also the necessity which there is in order for their perfect production that the cavity should be of moderate size, surrounded by indurated tissue, and situated not far from the ribs. In connexion with this subject, he alludes to the gurgling sound produced by the air passing into a cavity containing a considerable quantity of liquid, and also to what he calls gurgling cough, which is produced by the same condition of parts. When this latter is heard, it seems, to use his own language, as though the whole contents of the cavity struck against the ear at

once, and produced a *splash*. This sound is owing to the general succussion of the chest which takes place in coughing, as well as to the forced impulse and agitation of the air within the cavity itself. Indeed, succussion alone, occasioned by other means, will produce it. Dr. L. lays some stress upon the value of this "gurgling cough," as enabling us sometimes to discover the existence of a cavity in which, owing to the quantity of liquid contained, the want of free access of air and other circumstances, cavernous respiration and gargouillement do not exist.

Dr. L. has not undertaken in the work before us, to give a complete account of auscultation, but has merely treated the subject for the sake of illustrating to students "the best means we have of knowing organic disease by direct symptoms." In order more fully to accomplish this, he next proceeds to take a general survey of the progress of phthisis as affording the best example of a succession of morbid changes; he points out the most prominent symptoms, whether auscultatory or general, which characterize its various stages, and shows how the two orders of symptoms mutually throw light upon each other, and thus frequently afford us the means of determining its character and keeping pace with its changes, when neither taken separately, would enable us to do so. We shall extract the greater part of his description of the first stage, not merely on account of its intrinsic value, but as affording a beautiful instance of that mode of comparing and combining symptoms, both negative and positive, and considering them in connexion with certain established facts, which will frequently lead us to positive conclusions that would have been altogether unattainable, had we limited ourselves to the examination of the prominent and direct features of the disease. This mode of procedure, too, is applicable to all diseases, and is often the only one by which, in obscure cases, we can determine their nature.

"Let us consider pulmonary consumption in the stage of its first developement, its most uncertain, but its most fearfully interesting stage. An individual is suspected to be phthisical; he has some fever, some acceleration of pulse, some emaciation, and some cough; all inconsiderable in degree, yet all abiding, but no expectoration.

"In a patient thus suspected to be phthisical, auscultation may discover no more than this; that beneath the clavicle and about the scapula the respiratory murmur is less clear on one side than on the other, and that, when the murmur is defective, then, too, the chest is less resonant to percussion. Now if, after repeated examinations, auscultation comes always to this result, no doubt can remain that tubercles are already formed in the upper lobe of one lung.

"But here is no unnatural sound, only the natural sound is in part defective; and this must arise from some impediment to the passage of air through that portion of the lungs. Now, impediment may arise from the deposition of lymph, or any of the common products of inflammation, as well as from tubercular matter. But inflammation is very unapt to take place, and its products to be effused into the apex of an upper lobe, while every other part of the lungs remains unaffected by it. It may ultimately reach this situation, but seldom, very seldom, begins in it. On the other hand, it belongs to phthisical disease to deposit tubercles in the upper lobes first, and thence gradually to scatter them over the rest of the lungs."—p. 233, 234.

"Thus," he continues, "we acquire a knowledge of the existence of tubercles by that sort of evidence which has been called circumstantial. * * * * As

thus, auscultation finds the respiratory murmur defective at a certain part of the lungs; and hence we infer its obstruction by the deposition of some kind of matter or other. But the part is that which nature chooses, above all others, for the deposition of tubercular matter; and hence we further infer that the matter is tubercular in this particular instance. But, moreover, the constitutional symptoms are such as are wont to accompany phthisical disease; and hence we finally infer almost to a certainty that tubercles are deposited at the upper part of one lung. We conclude that the thing must be, because it *can* be nothing else."—p. 235.

But in order to be perfectly assured that the general symptoms present are produced by no other alteration of structure, one thing still remains, viz. to ascertain by a careful investigation, the state of all the other organs of the body.

This interrogation of all the organs is in fact necessary for the perfect comprehension of most cases of disease; without it we are never certain that we are in the possession of all the elements of the problem which it is our business to solve. After noticing the value of hæmoptysis, Dr. L. goes on to describe the more advanced stages of the complaint. He draws a comparison between the phenomena presented by the deposition of the tuberculous matter in the glands of the neck and its consequences, and those which accompany the same process in the lungs. In both tubercle is generally deposited without the simultaneous occurrence of any appreciable inflammatory action, and in both, inflammation supervenes at a more or less remote period, and is preparatory to the elimination of the tuberculous matter. So long as this inflammation does not extend beyond the parts immediately surrounding this foreign mass, it may be said to be confined within its specific limits, for then it exists only to the extent necessary for the purpose in view, viz. the expulsion of the tuberculous matter. But the inflammation may extend beyond its proper limits, and thus constitute an important feature of the complaint in certain cases, but is still always to be regarded as incidental rather than essentially belonging to the disease. Those cases of phthisis in which the tuberculous matter either remains in a crude state, or is surrounded only by that degree of inflammation which is necessary for its elimination, are called by our author unmixed phthisis, and those in which the inflammatory action extends beyond this point are called mixed phthisis. The progress of the former is generally slow, and that of the latter rapid; but of course there are many intermediate cases which partake partly of the character of the one and partly of the other, according to the period at which we happen to observe them. Where tubercles exist to any considerable extent and remain for a long time in a state of crudity, the individual so affected loses the complexion of health and becomes thin; he coughs a little; but perhaps he has no notable fever, and no constant acceleration of pulse; there is dulness on percussion and feebleness of respiration at the summit of one or both lungs. This form of consumption may endure for years, and it is a continual puzzle to the patient why he does not get well.

"He consults an infinite number of medical men; and it is remarkable that he gets no comfort or satisfaction from those who understand his disease the best, and the greatest comfort and satisfaction from those who understand nothing about it. Those, who know what it is, out of kindness do not tell him the truth,

and they cannot asseverate a falsehood stoutly enough to carry any weight with it; whereas those who know nothing about it affirm boldly and unhesitatingly that *it is all stomach,* really believing that the whole and sole disorder is in the stomach, and that it is within the reach of an easy cure." p. 247, 248.

Pulmonary consumption may likewise pursue a very chronic course, even when vomicæ are early formed, provided the surrounding inflammation does not extend beyond its specific limits, because after the tuberculous matter is discharged, the lungs are comparatively healthy; the patient partially regains his strength and flesh, and remains in this state for years, until the formation of a fresh crop of tuburcles occasion a repetition of the same process, which may be repeated again and again before the patient finally succumbs.

But sometimes the inflammatory action extends beyond its proper limits, and greatly aggravates the disorder, and gives rise to a new train of symptoms, which disappear again after a time, to be renewed at some future period. Our author thinks that it is of great practical importance to watch these accessions of inflammation, as upon this will depend, in a great measure, our success—I will not say in curing, but in alleviating and prolonging the disease, as the treatment during the accession is very different from that which is required in the interval. This circumstance will serve to explain why such opposite modes of treatment have been recommended in phthisis, for whilst leeching, &c. are proper for one stage, a nourishing diet and other invigorating measures are highly important in the other. To auscultation, as our author observes, we are mainly indebted for the determination of this question, and to auscultation we are obliged to appeal to assist us in its practical application.

Our author next proceeds to consider the errors into which auscultation may sometimes lead us, and has illustrated them by appropriate examples. It is unnecessary to reproduce them here, as the sources of fallacy which he has mentioned are generally understood and appreciated by those at all acquainted with physical exploration of the chest. We will merely observe that the errors alluded to may, in general, be avoided by considering the physical signs in connexion with the general symptoms present at the time, and with the previous history of the case. That mistakes are sometimes committed by those who practice auscultation, we are not disposed to deny; but it is equally certain that they would be infinitely more numerous, were auscultation not employed by them. Indeed, where is the physician who cannot recall, in all classes of diseases, numerous instances in which he has formed an erroneous diagnosis, into which he has been misled by the character of the pulse and other symptoms?

The metallic sounds form the subject of the concluding chapter. These are produced either by an excessively large cavity within the lungs, and containing but a small quantity of liquid,—or by that condition of parts which has been called pneumothorax, where, an unnatural opening having been formed between the bronchial tubes and the cavity of the pleura, the latter has become filled with air and some liquid. In either case the sounds derived both from percussion and auscultation, present more or less of a metallic character, and

convey to the mind the idea of being produced in a hollow metallic or glass vessel. The history of pneumothorax has been made use of by Dr. L. for the purpose of illustrating the precision of auscultation. For this purpose he supposes a case of phthisis, in which the tubercles are deposited in the upper lobe of the right lung, the rest of the lung and that of the opposite side being nearly or entirely healthy. Over the upper half of the right lung then, the percussion is dull and the respiratory sounds are such as belong to condensation of the pulmonary tissue; over the lower half the percussion is sonorous and respiratory murmur natural. In a few days the same patient is examined again, and the physical signs are reversed. Over the *lower* half of the right lung the percussion is dull and the respiratory murmur absent, whilst over the upper half the percussion is excessively sonorous, and at the same time a metallic resonance characterizes all the sounds which reach the ear from the same part, either during breathing or coughing. "Where it was dull, the chest is resonant; where it was resonant, it is dull." The resonance is caused by the large quantity of air which is contained in the cavity of the pleura, and which communicates freely with the external air by means of a fistulous opening into the bronchial tubes; and at the same time the lung being pressed backward towards the spine, the respiratory murmur is effectually prevented. The dulness is caused by the effusion of fluid into the same cavity.

"Thus air and fluid share the cavity of the pleura between them. The air found its way thither from the vomica. * * * * * The fluid is a secretion from the surface of the pleura itself. And the air and the fluid, thus sharing the cavity of the pleura between them, do, by the manner in which they are made to act upon each other, produce the ringing or the tinkling which accompanies the breathing, the voice, or the cough, and the splashing which attends succussion. * * * * * In this instance, if you could look into the chest of the living man, what more could you know than you do know by listening at it."—p. 318.

It will be recollected that the work which we have been examining, forms part of a series of lectures delivered by the author at St. Bartholomew's Hospital, on subjects connected with clinical medicine. Its object is not to give a complete account of auscultation, but rather to place before the student a general outline of the objects of clinical medicine, of the mode in which it should be pursued, and especially to give him correct ideas of the value of symptoms. Of these latter, those derived from auscultation, have been chiefly considered for the purpose, as Dr. L. himself remarks, of illustrating the best means we have of knowing organic diseases by direct symptoms. Indirect symptoms have not been treated of in the present volume.

The style of the book is easy and perspicuous. Many of the author's ideas in relation to medical education, seem to us to be exceedingly just and worthy of attentive consideration. They display perfect independence and some originality of thought. His observations upon clinical medicine and the mode in which it should be pursued, have great practical value. The book will amply reward any one, whether practitioner or student, for the trouble of a careful perusal.   T. S.

Art. XIII. *New Views of the Process of Defecation, and their Application to the Pathology and Treatment of the Diseases of the Stomach, Bowels, and other Organs, together with an Analytical Correction of Sir Charles Bell's Views respecting the Nerves of the Face.* By James O'Beirne, M. D., Surgeon Extraordinary to the King; one of the Surgeons of the Richmond Surgical Hospital, Dublin, &c. &c. Dublin, 1833. pp. 286. 8vo.

This work is composed of two parts, apparently disconnected, but the author's theoretical opinions involve certain questions with regard to the distribution of the nervous filaments of sensation and motion in the lower part of the intestinal canal, which bring him, by a tolerably natural transition, to the consideration of subjects connected with the physiological relations of the several great divisions of the nervous system.

From the tenor of the preface, it appears that the attention of Dr. O'Beirne was first drawn toward the consideration of the physiological laws of defecation, by the results of his favourite practice in tetanus. The constipation in that disease having yielded to the operation of tobacco enemata—an effect attributed by him to the relaxation of the muscular fibres of the upper portion of the rectum, the contraction of which he believed to occasion the retention of the feces—he was led by a very common process of thought to attribute constipation in general to the same cause. The peculiar neuralogical views of the author will be touched upon but lightly, if at all, in the present article, for the facts and observations upon which they are built, are not detailed in the present treatise, but are promised in a work on tetanus, announced as about to appear in the course of a few months.

It would be difficult to pursue precisely the arrangement of Dr. O'Beirne's arguments and statements in favour of his opinions on the subject of defecation, which are the principal burden of the work. The following general sketch will, however, convey to the reader an idea of those views which he regards as " likely to lead to no mean improvement and alterations, both in the theory and practice of medicine."

According to our author, the sigmoid flexure of the colon is the final receptacle of the feces while accumulating in quantity sufficient to furnish a proper stool. In health, the pouch of the rectum is always empty of feces except immediately before an evacuation, and the upper part of the intestine, intervening between the colon and the pouch, is not only empty, but firmly contracted by its circular muscular fibres. From some of the remarks contained in the early part of the work, the casual reader might infer that Dr. O'Beirne considered the sigmoid flexure of the colon as a cavity closed by a distinct sphincter, but the reverse position is maintained in the sequel. According to the theory, it is the whole upper portion of the rectum that acts as a sphincter. But the arrest of the feces is not exclusively dependant upon the contraction of the rectum; for it is much aided by

the peculiar position of the sigmoid flexure when empty; as it then falls into the pelvis, leaving its terminal extremity higher than its first curvature. Fluid feces flow into this depressed portion by degrees, and the more solid excrements are arrested there for a time. When the quantity becomes sufficient to distend the sigmoid flexure completely, this portion becomes somewhat straightened; it rises from the pelvis, and its course and termination bear a relation to the rectum, somewhat similar to that existing between the stomach, with its pyloric extremity, and the duodenum.

The upper end of the rectum remains a fixed point during these changes in the sigmoid flexure, being allowed scarce any latitude of movement by its peritoneal attachments, and the descending colon undergoes no change of position for a similar reason. The weight of the feces now bears directly on the upper orifice of the rectum, and acts as a distending force, but this alone is generally insufficient to provoke the motions necessary for completing the process of defecation. Portions of gaseous fluid sometimes escape, leaving the solid excrement behind, or the contraction of the upper portion of the rectum may be so strong as to prevent, entirely, the passage of any thing whatever. The feces, in health, never accumulate gradually in the pouch of the rectum, but are conveyed there by the evacuation of the sigmoid flexure, which takes place immediately before a stool, and the presence of the feces in the pouch immediately provokes their final expulsion. Nothing is then found in the rectum until the sigmoid flexure of the colon is again filled and evacuated.

During the slow and gradual discharge of the stercoraceous matter from the small intestines into the cæcum and colon, and their occasional passage onward to the sigmoid flexure, (for although there is some apparent incongruity between the views of Dr. O'Beirne as to the gradual accumulation in the sigmoid flexure, and his explanation of the final effort of defecation, it is evident that he admits of the occasional passage of feces from the cæcum to the flexure in the intervals between stools:) during this process, he says, that the solid portions of excrement are accumulated in the cæcum and in the flexure in two distinct masses, the intervening portions of the colon being filled with the flatus generated during digestion, which rises in consequence of its levity toward the great arch of the intestine, and by occupying the interval between the two masses of solid or semifluid matter, reacts upon both, so as to retard or prevent the advance of the cæcal mass, while it urges that contained in the sigmoid flexure more strongly against the upper extremity of the rectum, where its almost constant pressure increases the tone and irritability of the upper circular fibres, rendering their contraction habitually more powerful and subjecting them to more frequent attacks of spasmodic stricture, with its occasional consequence, organic contraction. The continual increase of the matter in the cæcum and ascending colon, together with the constant addition to the quantity of the flatus, finally brings on that degree of distension which provokes a general contraction of the whole extent of the great intestine upon a physiological principle commonly observed in the action of all the hollow muscles, and the process of defecation

begins by the distension of the upper portion of the rectum, the efforts of the abdominal muscles and diaphragm being called into sympathetic action. As the feces contained in the sigmoid flexure pass the barrier and fall into the pouch of the rectum, distending it and producing an impression upon the urinary apparatus which need not be described, because it is so very obvious, they then provoke the sensations and actions of the sphincters and levatores ani, which are necessary to the final expulsion of the mass. The feces accumulated in the sigmoid flexure are first discharged, perhaps, with some flatus. The great body of the flatus follows, and the barrier to the progress of the cæcal mass is thus removed, while a large additional quantity of feces is forced from the small into the great intestine by abdominal pressure. What was previously contained in the cæcum is driven up the ascending colon across the great arch, and into the descending colon; whence its progress to the sigmoid flexure is easy. With these changes the nisus is arrested; the rectum is left empty; the sigmoid flexure in a condition to become gradually filled; the cæcum occupied by a new mass of feces; and the great arch of the colon in a state of gradually increasing distension from stercoraceous gases.

"In arriving at this stage of the subject, evidence has been adduced which appears to bear me out in concluding, first, that the cæcum is considerably distended before it is unloaded; secondly, that the whole of the mass by which it is distended, and no more, is transferred at each time that it is unloaded; thirdly, that at the moment of going to stool, there is generally one mass of fecal matter in the cæcum, and another in the sigmoid flexure, and consequently, that these may be considered as the measure of the quantity discharged when the bowels are said to be freed; fourthly, that as two distinct acts of expulsion are always required, before a healthy person finds his bowels sufficiently freed, *the capacity of the cæcum may be received as the measure of that of the rectum.*" p. 25.

"By the manner in which the cæcum is filled and emptied, and the discharge of the egesta regulated, the whole of the intestinal canal is permanently retained in a state of distension sufficient to excite and support the action of the diaphragm and abdominal muscles; and by so doing, to keep up that constant pressure upon the great veins of the abdomen, by which they are chiefly enabled to forward their blood to the right side of the heart, and without which, having no valves, and possessing but few other provisions for propulsion, they would be rendered wholly incapable of performing this function so essential to life." p. 26.

The mode in which this explanation of the mechanism of defecation is applied by the author in his pathological reasonings, may be perceived from the following passage.

"When, from a variety of causes too well known to require mention, morbid irritation is excited in any part of the digestive tube itself, or in any of the great nervous centres which preside over its functions, or in any one or more of the numerous other organs with which it is connected by sympathy, this irritation may be either of so mild and peculiar a nature as merely to quicken and repeat the natural process of defecation, and thus give rise to diarrhœa, or it may be of various degrees of greater intensity, and produce other, and very different effects. Whenever it exists in any of these situations, and that it is higher in degree than that which causes diarrhœa, it is clear that the maximum of its effect will be upon that part of the intestinal canal which is at once the most muscular and excitable, and, by being already contracted and empty, the least capable of resisting its action; and consequently, that the rectum, being the only portion of the canal so circumstanced, will be stimulated to still greater contraction, and thus cause constipation. It is also clear that the constipation so produced, will be more or less obstinate in the direct ratio of the intensity of the

irritation, and the degree of irritability of the person. If the constipation proves obstinate, the patient feels, perhaps, no inconvenience, and continues to indulge his appetite as usual, until at length, the cæcum and colon become so distended that they can no longer admit the contents of the ileum, and then pain in the bowels, severe twitching round the umbilicus, vomiting, and, in short, the symptoms of colic ensue. If this state be suffered to continue for a certain length of time, the solid, fluid, and gaseous contents soon cease to find an entrance into the colon, accumulate in the ileum and other small intestines, rouse these intestines, and also the abdominal muscles into strong action, and thus finally become the cause of their own expulsion by the mouth, the only direction in which they can pass, or encounter least resistance. In this way, and without in any manner recurring to the gratuitous assertion of inverted or antiperistaltic motion taking place, stercoraceous vomiting is superadded to the other symptoms, and colic is converted into ileus or ileac passion. Lastly, if the patient be not relieved from this state, he will either die, exhausted by excessive pain and debility, or the following series of effects will be produced:—the distension of the whole of the intestinal canal goes on increasing until the laminæ of the mesentery become forcibly separated just as they go to invest the intestines, and the subserous tissue is either unnaturally stretched or torn; this tissue soon becomes the seat of an inflammatory action, and thus, according as this action may extend itself along the mesentery, or confine itself to the serous coat of the intestines, will ileus be converted into peritonitis or enteritis." p. 27, 29.

Dr. O'Beirne considers costiveness, in a great majority of cases, to be the consequence of spasmodic or organic stricture at the extreme upper end of the rectum; and the cause, *par eminence*, of a variety of diseases is supposed by him to be the pressure of the feces accumulated above the stricture. He thinks that the upper circular fibres of the rectum, are the primary seat of stricture of the rectum, and seems almost inclined to deny the existence of such contractions in any other part of this intestine, because he has failed to discover specimens in examining several very extensive cabinets of morbid anatomy, and because he cannot explain the formation of strictures in other parts of the canal; their existence in such situations conflicting somewhat with his theory. The former circumstance is certainly curious.

Dr. O'Beirne admits that costiveness may arise from many other causes than stricture of the upper part of the rectum, thus the sides of the pouch may adhere in consequence of inflammation, and organized bands of lymph may be stretched across the passage, so as to arrest the solid feces, without preventing the escape of fluids and gaseous matter; tumours may involve the descending colon beyond the sigmoid flexure, or the intestine may be twisted by sudden distension at the upper end of the flexure, so as to foreclose the passage of any thing whatever. He even admits that the rectum *may become the final reservoir of feces, in lieu of the sigmoid flexure,* when the whole of that intestine, together with the sphincters, is rendered paralytic, as in the costiveness of old persons. The solid matters are then retained, but fluid and mucus escape, and give rise to an apparent diarrhœa. The same condition may occur from a serious injury of the spine; but an irritation of that part, on the contrary, produces strong spasm of the upper portion of the rectum, and prevents the possibility of such accumulation. This idea, that all the parts connected with the lower end of the alimentary canal in the costiveness of old per-

sons, are in a paralytic condition, seems to be the result of his pecu-
liar notions as to the source of the nervous influence governing these
parts, which he attributes exclusively to the cerebro-spinal system.
The facts, reasonings, and references brought forward in support of
this position are far from being satisfactory.

The views of the author, as now laid before the reader, are claimed
as original, and their importance, in a practical point of view, is so
strongly impressed upon the public that it seems necessary to bestow
considerable attention upon the principal positions of Dr. O'Beirne,
and to consider how far they are consistent with some well known
facts bearing both upon their correctness and their originality.

Firstly, then, let us consider the remarks of Dr. O'Beirne on the
anatomical structure of the rectum and the effect of that structure
upon the accumulation of feces in the sigmoid flexure of the colon,
and the pouch of the rectum. The author states that it has been the
universal opinion of the anatomists who have preceded him, that the
colon and rectum are one continuous canal; thus far he is just toward
his predecessors, and their opinion is not to be controverted. The
prima via, viewed from the mouth to the anus, may be called with
perfect propriety, one continuous, open, and uninterrupted canal; for
neither the pyloric muscular fibres, the cæcal valves, nor the anal
sphincters, even when in action, can be said to interrupt the freedom
of communication in the right direction, from one part of the intes-
tines to another. If we regard a sphincter, or any peculiar arrange-
ment of fibres that retards for a time the progress of the intestinal
contents, as an interruption of the canal, then is every arched fibre
of the small intestines a distinct sphincter; for, in all places through-
out the alimentary tube, the progress of the matters subjected to
digestion, are, *in health*, retarded sufficiently to allow of the necessary
changes effected by the ever varying functions of each intestine. In
disease, a spasm may close the canal sufficiently to prevent the pass-
age of the contents at any point whatever, and, although death usually
removes all traces of simply spasmodic contraction, it can hardly be
supposed that any extensive observer of examinations, post mortem,
has failed to meet with many cases of visible and strong contraction,
both of the small intestines and the descending colon, which persist
even in the dead body, without presenting any appreciable organic
changes. All muscular fibres are liable to spasmodic contraction,
and it is not necessary that the accident should be witnessed in any
particular muscular part, in order to prove the possibility of its oc-
currence there. It is equally well known, that all healthy muscular
fibres supplied by uninjured nerves, contract continually, when un-
opposed, and there is no assignable limit to that contraction in any
particular system of muscles. We do know that the hollow muscles
generally, contract when empty, until they obliterate their cavities.
Why, then, should the rectum, when unoccupied, be an exception to
the rule? The pouch of this intestine is indeed connected in such a
manner with surrounding parts, that it cannot be obliterated by its
fibres alone, for, though they are capable of contracting its dimen-
36*

sions considerably, they are finally opposed by forces acting from
without. Our author himself, though he believes this cavity to be
habitually "perfectly empty," speaks also of its being habitually
and "perfectly *open*"—the syringe pipe, when introduced, moving
"*freely* in all directions" within it. No doubt the meaning of the
writer, in using the words marked in italics, was to convey the idea
that the pouch, when empty, was in a state of simple collapse, and
that the finger readily distended it—moving in all directions with
very slight opposition. This may appear like verbal hypercriticism,
but the example is quoted to show how difficult it is to avoid the oc-
casional use of words sufficiently accurate perhaps to convey correct
ideas to those who are well acquainted with the subject, but covering
in their literal sense a meaning altogether at variance with the laws
of nature. The pouch of the rectum cannot possibly be perfectly
open and at the same time perfectly empty. The pressure of the at-
mosphere renders such a condition impossible. It is not pretended
that the cavity is occupied by intestinal gas, and by the hypothesis it
contains no feces. Is it then filled with atmospheric air? This can-
not be, for by the hypothesis it expels, at each evacuation, *all its con-
tents,* and it is well known that no atmospheric air rushes in at the
anus on the cessation of the nisus.

The claim of originality in representing the rectum as habitually
empty, appears to be founded chiefly on the fact that physiologists gene-
rally describe the colon and rectum as one *continuous* canal, and on the
equally general habit of regarding the pouch of the rectum as a final
reservoir for the *gradual* accumulation of feces. After an attentive
examination of the work under notice, this appears precisely the
purpose for which the pouch of the rectum was by nature designed,
nor can we perceive any contradiction between the above opinions and
the views of Dr. O'Beirne, although he combats them so strongly.
The words "continuous" and "gradual," probably convey very dif-
ferent ideas to different persons. The two portions of canal are con-
tinuous in a broad sense because they are both portions of the alimen-
tary tube; they are continuous in a narrower sense, because their
junction is not provided with a sphincter, but it does not follow that
the passage of the feces from the one portion to the other is either
constant or easy, *nor was it ever believed to be so,* for the position of
the sigmoid flexure, and the comparative fixedness of its extremities—
points that are universally understood—are sufficient to suggest to the
most casual observer the fact that the feces are retarded in passing
the flexure; and, whatever may be thought of the mode in which the
intestinal contents are urged through the colon, the *cæcum* has been
regarded as a reservoir from time immemorial. No physiologist ever
dreamed that the feces therein formed, are perpetually and at all
times in motion towards the rectum. The supply of feces to the
pouch is therefore necessarily intermittent, and, consequently, the
rectum must be generally empty during considerable intervals after
the evacuations. These facts may not all have been distinctly and
connectedly laid down in books, but this circumstance may be more

plausibly attributed to their perfectly obvious character, than to any ignorance of them on the part of the profession.

Again, the precise arrangement of the muscular fibres of the rectum, excepting only the duplicature of the longitudinal fibres at the margin of the internal sphincter, discovered by Dr. Horner, have been described in detail by all the most distinguished writers on anatomy, and the relative strength of the muscular coats of the colon and rectum, has long been familiarly known. Now, if we combine these well known facts,—videlicet, the strength of the muscular coat of the rectum, the frequently empty condition of this intestine, the curvature and connexions of the sigmoid flexure, and the laws of muscular contractility, the consequence is plain. The feces must accumulate in the sigmoid flexure, and if, in consequence of disease, unusual opposition is offered to their passage, they accumulate in the descending colon or the whole colon, the rectum, *it may be,* remaining empty in the mean time. But these views are not novel. It is customary to speak of emptying the *rectum* by injections, but the employment of a pipe three or four inches in length, inserted as far as possible, in order to throw up a quart of fluid, is a very usual practice. The administration of very large injections to dilate spasmodic stricture, or to wash away impacted feces in the colon, is mentioned incidentally by the author himself, as an old practice.

It may be urged by the author, that these attempts at acting upon the colon by injection, were not founded upon the idea that the constipation resulted from the normal or abnormal contraction of the upper part of the rectum. They were often made to conquer the effects of supposed spasmodic or other strictures, either there or higher in the canal. Now, he declares, himself, that the superior extremity of the rectum is, *and has long been considered,* the chief location of the stricture; and to the presence of spasmodic stricture, he attributes those cases of constipation which have been so astonishingly relieved by the method of treatment instituted by him. It must be acknowledged, then, that however different the measures employed may have been, his predecessors at least attempted to conquer the same difficulties upon very analogous principles.

But, has it ever been customary to attempt the relief of costiveness resulting from the action of the superior portion of the rectum, when unaffected by stricture? The same elongated syringe pipe, and the same large injections thrown up forcibly, to dilate the rectum, and enable the fluid to reach the colon, have been frequently practised in fevers and dysentery, long before the doctrine of Dr. O'Beirne was advanced, and we never heard the well known resistance to the flow of large injections attributed to any other cause than the contraction of the rectum, unless feces were distinctly felt in the bowel, which only happens occasionally.

In order to establish his position, that the pouch of the rectum is almost *always* empty, except immediately before a stool, and that any collection of feces there brings on an almost immediate evacuation in healthy patients, Dr. O'Beirne alludes to the very constant

absence of traces of feces on the injecting pipe, after the exhibition of enemata, and the want of opposition to the finger from alvine accumulations in examinations per anum. We cannot avoid the impression that more careful and extensive observations on these points would have led the author to different conclusions. Waving the ample evidence of an opposite character that might be adduced, it may be remarked that the introduction of the finger, the pipe, or the stomach tube into the healthy rectum, is extremely apt to determine a stool; and thus the surgeon accomplishes the verification of his own prognosis!

We have known considerable accumulations of feces to remain in the pouch without a discharge for forty-eight hours or more! and even to resist for several hours the action of cathartic medicines. These patients have been persons in good general health, and suffering no material inconvenience from the distension, of which many of them have been altogether unconscious.

Dr. O'Beirne is equally incorrect in supposing that the very hard accumulations in the rectum, so frequently met with in old persons, are confined to them exclusively, or that fluids invariably pass in these instances, so as to produce a seeming diarrhœa. Like all the hollow viscera, the rectum may be subjected to a temporary paralysis from undue distension, while the power of the sphincters is undiminished, and then no discharge whatever takes place. We have witnessed several remarkable cases of this kind, the last of which occurred quite recently, and may be noticed as in point. A young lady, aged about twenty-four years, in good general health, and leading a rather active life, laboured under symptoms leading her friends to suspect the existence of calculus, and they were certainly very similar to those of a fit of stone, but she had never complained of uneasiness about the bladder at any former period. On preparing to sound, while searching for the meatus with the finger, the orifice of the vagina was felt to be closed, as if by a tumour in rear of the canal. With much pain to the patient and some difficulty, the finger was carried fairly into the vagina, and the cause of all the symptoms at once discovered. The rectum was distended to a very great degree and could be distinctly traced as a cylindrical tumour throughout its entire length. It felt almost as hard as stone! When called, we were informed that she had been without a discharge for seven days, but having been subject to costiveness, and feeling no desire to go to stool other than a general bearing down which she referred to the bladder, she had no conception of the true condition of things. All proposals for relieving the rectum by means of the scoop were peremptorily rejected. The patient strongly protested against injections, and it would have been unwarrantable to trust the pipe in the hands of nurses or attendants in a case in which the solidity of the feces was such as to deny an entrance to the finger. She was, therefore, directed repeated suppositories of brown soap, to be followed by forcible self-injections of tepid water from a two ounce syringe with a short beak, and the internal use of an ounce of sweet oil every six or

eight hours. Small portions of feces were gradually brought away by the injections, and the rectum became somewhat less tense, but it was not until nearly forty-eight hours had elapsed, and after the exhibition of a tea-spoonful of spirit of turpentine that the rectum recovered its tone. Several enormous stools followed in rapid succession, and the symptoms disappeared. She has perfectly recovered, both from the cystic symptoms and the habitual costiveness, the latter having yielded promptly to a properly regulated diet, and a few small doses of calomel.

The next point to be taken up in order, is the mode in which the feces in the great intestine are propelled throughout the colon from the cæcum to the sigmoid flexure. Dr. O'Beirne seems to attribute this motion almost exclusively to the pressure of the abdominal muscles, and to a general contraction of the whole intestine, usually timed so as to correspond with the moment of alvine evacuation. At each stool the sigmoid flexure is emptied into the rectum, and the cæcum into the sigmoid flexure, the intervening space being occupied with gas. The author seems to reject almost entirely, in regard to the colon, what we know has been before disputed in all the intestines, namely, *the peristaltic motion;* but he distinctly admits the existence of this action in the small intestines in one passage of his work, while in another he calls the mode of accounting for stercoraceous vomiting, by supposing that motion to be inverted, *"gratuitous."*

This mode of explaining the transmission of feces appears to us altogether too mechanical for general application, for, though it would be unreasonable to doubt the frequent interchange of matter between the cæcum and flexure, at the time, and somewhat in the manner described, yet the explanation will not account satisfactorily for the occasional absence of feces either in the cæcum or the sigmoid flexure, and their occasional presence in isolated masses throughout the transverse and descending colon. There are two circumstances which convince us that feces are actually propelled throughout the whole rout of the intestinal canal by the successive contraction of the circular fibres. These are as follows:—there is no considerable part of the canal, except the caput cæci, the pouch of the rectum, and the duodenum, that is not frequently seen empty after death, and in a state of circular contraction, apparently closing the canal without any collapse. These contractions have been sometimes only a few lines, and sometimes many feet in length. The colon, though more rarely found in this condition, because either feces or flatus are almost universally present in it, is by no means exempt from it, and although the contraction is most frequent in the descending portion, it is met with likewise in the ascending portion, and in the great arch of the bowel. The sudden and narrow contractions are generally rigid to a certain degree, and in the few instances in which the previous history of the case is known, there have been spasmodic symptoms during life. The more general diminutions of calibre, on the contrary, have occurred sometimes in cases of sudden

death, from apoplexy, the crush beneath a bank of falling earth, blows on the head, &c.; they are not marked by any rigidity, and we perceive no reason for considering them as morbid phenomena. Again, in persons who have been subjected to long continued abstinence, and whose bowels are almost perfectly empty, it is well known that a small portion of flatus may traverse not only the small intestines, but the cæcum, colon, sigmoid flexure, and rectum, in the course of a few moments; its advance being recognised with ease during no inconsiderable portion of the time.   What then becomes of the doctrine of the general contraction of the colon, and the necessity for the distension of the flexure, in order that the process of defecation may be complete?

Dr. O'Beirne certainly generalizes rather too much, and the remark might receive additional illustration from an analysis of his reasons for supposing the upper extremity of the rectum to be invariably the seat of stricture of the rectum, and also his peculiar views of the pathology of dysentery—but this article is becoming somewhat extensive, and it is time to notice the peculiar practice which he has instituted in consequence of his anatomical and physiological observations.

The pathological passage already extracted from the work will explain in some degree the extent to which costiveness, as a symptom, becomes a matter of serious import in the history of many diseases, and it will also explain the motives of the author in recommending the introduction of the stomach-tube beyond the rectum and into the sigmoid flexure of the colon, for the purpose of either dilating the passage, abstracting accumulated feces, or giving exit to flatus, and thus bringing on the "general contraction," which, in all hollow muscles, commences immediately on the removal of a considerable portion of their contents.

That the practice has been attended with happy results in a number of curious cases, is amply proved by those detailed in the work before us, and it has been advocated strongly in fevers and hernia by Dr. Parrish, of this city, who, in his recent work on Hernia and the Diseases of the Urinary Organs, gives due credit to Dr. O'Beirne for this contribution to our therapeutics in this latter disease.

But in defending his claim to originality in the use of the stomach-tube for injections, his tone is not precisely such as will be generally approved, as may be seen from the following extract, in which he adverts to the paper of Dr. Duguid on a case of intestinal obstruction successfully treated by mechanical means.

"But I am confident that when he comes to know that I employed this mode of treatment successfully for so many years before he thought of it—that it was in very general use in this country at the time he tried it—that the views which induced him to try it are perfectly erroneous,—and that the success of the trial which he made is owing solely to the chance by which false theory is known to lead to sound and successful practice; in short, when he comes to read this work, even Dr. Duguid must be convinced, that any claim which priority of publication might otherwise give him to the introduction of the practice, should yield to that which I have established by such numerous and incontrovertible truths."—p. 225.

Let the question of priority of publication be decided as it may, the use of the stomach-tube for the purpose of reaching points even higher in the canal than the sigmoid flexure, has been familiar to American surgeons from a time long prior to the date of Dr. O'Beirne's first case, though it may not have been employed with exactly the same views which he has advocated, for it is by no means established that spasmodic or organic stricture always originates at the upper extremity of the rectum, or that dilatation of the whole extent of the upper two-thirds of that intestine is a patholigical necessity in the very cases narrated by the author. Moreover, it can hardly be credited that the very slight distension resulting from the passage of a stomach-tube can conquer effectively a morbid contraction in a long canal, of which the fibres are accustomed to a periodical distension certainly more than five times as great. At the same time, assent may readily be granted to the high value of the practice instituted by Dr. O'Beirne, the result being attributable, in many instances, to the recovery of tone in the fibres of the colon, lost by over distension and regained after the escape of a portion of the contents through a tube; and, in some others, to the removal of hardened or impacted feces forming a mechanical obstruction to the evacuations— the very position modestly taken by Dr. Duguid, and for which he is so severely castigated.

It would be doing great injustice to the author, if in this very imperfect sketch of the work we were to leave the reader under the impression that it contains little deserving of high praise, both as to originality and practical utility. There is every reason to believe that he is perfectly original in the practice of exhausting flatus from the colon by means of a flexible tube, and in the application of this instrument in a variety of diseases in which costiveness had never been previously considered the result of an obstacle to the evacuation of the sigmoid flexure of the colon. He has completely established his point in this respect; and the cases detailed, in which the symptoms of retrocedent gout, spinal irritation, narcotic poisoning, abdominal tumors, strangulated hernia, colic, enteritis, puerperal fever or rather a threatening of this disease, dysentery, tympanitis, and even delirium tremens, have been materially relieved by his mode of practice, are in the highest degree important.

The second part of the work, which is a close and most valuable commentary upon the evidence afforded by Sir Charles Bell's experiments upon the nerves of the face, should be studied by every student of the works of this physiologist.

If Dr. O'Beirne should experiment upon the nerves of the colon and rectum with the same skill and judgment which he displays in analyzing opinions on those of the face, there can be but little doubt that the cause of the science will be seriously advanced; but it is probable that his present opinions, as to the balance of power between the rectum and colon, would then undergo some modifications.

Waiting with some anxiety for the promised treatise on tetanus, we will now close by recommending this work to all cool pathological

examiners, who cannot fail to find therein many valuable hints that we have been compelled to pass unnoticed.

One word to the author at parting—The tribute of praise that is justly his, would be rendered quite as willingly if somewhat less exactly demanded.   R. C.

————————

Art. XIV.   *On the Analysis of the Blood and Urine, in Health and Disease, with Directions for the Analysis of Urinary Calculi.*   By G. O. Rees.   pp. 147.   London, 1836.

A Report on the Chemistry of the Blood, as illustrative of Pathology. By Egerton A. Jennings, F. L. S., Surgeon to the Leamington Charitable Bathing Institution.   From the Transactions of the Provincial Medical and Surgical Association.   Vol. III.   London, 1835.

Morbid Conditions of the Blood.   By B. G. Babington, M. D., F. R. S.   In the Cyclopædia of Anatomy and Physiology.   Parts IV. and V.   London, December, 1835, and March, 1836.

We propose to present to our readers in this article, a summary of the contents of the three essays, the titles of which we have given above.

According to one of the analyses of Lecanu, 1000 parts of healthy blood consist of

Water,	780.145
Fibrin,	2.100
Colouring matter, (hematosin)	153.000
Albumen,	65.090
Fatty matter,—	
Crystalline,	2.430
Oily,	1.310
Extractive matter, soluble in alcohol and water,	1.790
Albumen combined with soda, (albuminate of soda)	1.265
Chloride of sodium, Chloride of potassium Carbonates, Phosphates, alkaline, Sulphates,	8.370
Carbonate of lime, Carbonate of magnesia, Phosphate of lime, Phosphate of magnesia, Phosphate of iron,	2.100
Loss,	2.400
	1000.000

Besides the substances enumerated in the foregoing analysis, minute quantities of silica, manganese, copper, and titanic acid have been detected in the blood.

It is well known that the blood, soon after it is drawn, separates into two parts, a red mass called *crassamentum*, and a straw-coloured liquid denominated *serum*. The proportion of the former to the latter in healthy blood, is as 13 or 14 to 10.

The crassamentum is made up essentially of fibrin and colouring matter, but contains, according as it is more or less dense, a smaller or larger quantity of serum, mechanically lodged within its substance.

The serum consists, in the thousand parts, according to Lecanu, whose analysis agrees essentially with those of Berzelius and Marcet, of

Water, - - - - - - -	906.00
Albumen, - - - - - - -	78.00
⌈ Animal matter soluble in alcohol and water,	1.69
⎜ Albumen combined with soda, (albuminate ⎫ of soda) ⎬	2.10
⎨ Crystalline fatty matter, - - -	1.20
⎩ Oily fatty matter, - - - -	1.00
Chloride of sodium, ⎫	6.00
Chloride of potassium, ⎬	
Carbonate of soda, ⎫	
Phosphate of soda, - - - - ⎬	2.10
Sulphate of soda, ⎭	
Carbonate of lime, ⎫	
Carbonate of magnesia, ⎜	
Phosphate of lime, - - - - ⎬	0.91
Phosphate of magnesia, ⎜	
Phosphate of iron, ⎭	
Loss, - - - - - - -	1.00
	————
	1000.00

The four constituents in the above analysis, to which a bracket is prefixed, correspond with the "animal matter with lactate of soda" of Berzelius's analysis, and the "muco-extractive matter" of Marcet's.

The serum may be considered as a watery solution of every ingredient of the blood, except the fibrin and colouring matter. Hence if we strike out these two principles from the list of ingredients in healthy blood, the remainder will represent the constituents of serum. It is thus perceived that serum is principally an aqueous solution of albumen, but containing small portions of animal and fatty matter, and of certain salts.

The fibrin, in healthy blood, varies considerably in its proportion. In Lecanu's analysis, quoted above, it amounts to 2.1 parts in the thousand. In another analysis he made it amount to 3.5. From more extended investigation, he is disposed to consider 4.3 parts in 1000 as the medium quantity. The colouring matter also varies much in its

proportion. Lecanu states the maximum to be 148.5, the minimum 68.3, and the medium 108.4 in 1000 parts. In the analysis which we have quoted, its amount is above the medium quantity.

The fibrin is obtained by washing carefully with distilled water, as long as any thing is washed away, a portion of crassamentum cut into pieces as minutely as possible. The colouring matter and salts will be all removed, and a white, slightly elastic matter, consisting of the fibrin, is left. In this state it contains four-fifths of its weight of water. When carefully dried, it becomes yellowish, stiff, and brittle. The colouring matter which is washed away in the above process, is variously called the red globules, red particles, hematosin, &c. The latter term is most appropriate. It exists in two states, one soluble, the other insoluble in water. *Soluble hematosin* is obtained by cutting the clot into very thin slices with a sharp knife, washing them repeatedly with distilled water to separate serum, and then subjecting them to pressure in a linen cloth. What remains is then to be triturated with a small portion of water, which dissolves the hematosin and leaves the fibrin. This solution, after filtration, is poured into plates, and evaporated to dryness in the sun. The dry matter which remains is the hematosin.

Hematosin, as thus obtained, is a solid, black and brilliant like jet when viewed in mass; dull and of a brick colour in powder; and brilliant, translucid, and reddish in thin layers. It is the heaviest constituent of the blood; its specific gravity, according to Dr. Babington, being above 1.129. Heated in a retort, it softens, swells, and is decomposed, giving rise to ammoniacal products, and a light, brilliant, voluminous charcoal, which furnishes on incineration, 2.258 per cent. of red ashes, consisting of 0.534 of peroxide of iron, and 1.724 of phosphate and carbonate of lime, carbonate of soda, and chloride of sodium.

Hematosin dissolves readily in cold water, and forms a solution of a deep red colour, and sickly odour and taste. Evaporated at a temperature below 122°, it is obtained in a solid state without suffering alteration; but if evaporated at or above the temperature of 158°, the solution loses its colour, and the hematosin coagulates in insoluble brown flocks. Nevertheless, according to M. Lecanu, soluble hematosin, in the solid state, does not lose its solubility even by exposure to a heat of 212°. In this respect hematosin is like albumen. When the solution of hematosin is exposed to the air, it becomes redder, but still of a colour less deep than that of blood itself. A current of chlorine decolorizes and coagulates it, the hematosin being precipitated in white flocks, while the oxide of iron and saline matters are held in solution. The mineral acids, when added to a solution of hematosin, fall in combination with it. In short, there is a great analogy between soluble hematosin and soluble albumen. Lecanu, however, has observed two points of difference; 1. hematosin is not precipitated by acetate or subacetate of lead, while both these salts throw down albumen; 2. the muriate of hematosin is soluble, while the muriate of albumen is insoluble in strong boiling alcohol.

When an aqueous solution of hematosin is boiled, nearly all the matter is coagulated. This, when treated with boiling alcohol to dissolve a little fatty matter, and then washed and dried, forms *insoluble hematosin.* In this state it is tasteless and inodorous, more or less red in powder, and black and hard in mass. It contains precisely the same quantity of iron as the soluble variety.

According to Lecanu, hematosin is not the colouring matter of the blood in a pure state, but an intimate combination of this matter, which he proposes to call *globulin*, with albumen. They may be separated by treating the muriate of hematosin with alcohol, which dissolves the muriate of globulin, but leaves untouched the muriate of albumen.

Globulin is distinguished by the following characters:—1. By its blood-red colour in the state of hydrate, and its brownish-red colour when dry; 2. By the large quantity of iron which it contains, amounting to 1.74 per cent. in the globulin from human blood, and 1.4 per cent. in ox blood; 3. By its great solubility in acids and alkalies; 4. and lastly, by its property of forming a compound soluble in alcohol with muriatic acid. The iron of the blood exists exclusively in the globulin; none of that metal being found in the ashes of the fibrin or albumen when perfectly pure. From the disposition which the salts of iron have to strike a red colour with certain reagents, we should think it probable, adopting the original opinion of Fourcroy, that the red colour of the blood is dependent upon the presence of iron, notwithstanding the opinion of Dr. Turner and of Dr. H. M. Edwards, that its tint is not derived from this metal, but is caused by a colouring principle sui generis.

The physical structure of hematosin has been the subject of a great number of microscopical observations. Those which appear most entitled to confidence, make the red matter of the blood to consist of globules of different forms and dimensions, according to the class of animals from which it is taken, being flattened spheres in the mammalia, and ellipses in birds. The intimate structure of the globule is stated to be a colourless nucleus, surrounded by a membranous vesicle. It is not known whether the vesicle constitutes the colouring matter, or merely encloses this matter between the central nucleus and itself. The average diameter of the entire globule in man is $\frac{1}{430}$th part of a line. It is not easy to connect the physical with the chemical analysis of the colouring matter; but it may be stated as probable that hematosin is the globulin of Lecanu, merely contaminated and not combined with albumen. If this be the case, the globulin of Lecanu corresponds with the red globules of the microscopists; for it has not been pretended that any chemist has been enabled to make an analysis of the tegumentary vesicle, apart from the central nucleus.

By the analyses which have been quoted, it is shown that the albumen of blood constitutes 65 parts in 1000 of the whole fluid, and 78 parts in 1000 of the serum. The trace of iron in the state of phosphate, found in the serum, is obtained upon incinerating the albumen, and is probably derived from a slight admixture of hematosin.

The fatty matter of the blood is obtained by Lecanu, by subjecting the solid matter of serum, after having been exhausted with boiling distilled water and dried, to the action of successive portions of boiling alchohol, so long as any thing is dissolved. The alcoholic solution, evaporated to dryness, gives the fatty matter, which, being treated with cold alcohol, is separated into the oily fatty matter which dissolves, and the crystalline fatty matter which is left. Since the publication of Lecanu's analysis, M. Boudet has made some researches on the blood, and alleges that the oily matter of Lecanu is a mixture of cholesterine and an alkaline soap, and that the crystalline fatty matter is identical with the phosphuretted fat of the brain, called *cerebrote* by Couerbe. M. Boudet, in the same paper, announces the existence, in the serum of the blood, of a white, slightly opalescent substance, fusible at the temperature of 97°, to which he gives the name *serolin*.

With reference to pathological inquiries, the chemical examination of the blood need not be conducted with a view to minute analytical results. Mr. Rees has laid down, in a very distinct manner, the mode of proceeding for determining the proportion of serum, fibrin, and hematosin in any specimen of blood. The weight of the blood operated on being noted, the proportion of solid matter to the water in the serum, is ascertained by evaporating a known weight of that fluid to dryness in a salt water-bath. The next step is to divide the crassamentum into two portions of equal weight, one to be used in ascertaining the proportion of fibrin, the other the proportion of hematosin. The first portion is cut into pieces, as minutely as possible, and placed on a filter, where it is washed with a stream of rain or distilled water, until all the hematosin and serum are washed away. What remains is the fibrin, and must be dried over a water-bath and weighed. The second portion of crassamentum is then thoroughly dried over a salt water-bath, and the residue carefully weighed. The loss of weight indicates the water, which in the clot was present in serum; and as the proportion of water to the solid matter of serum has been already ascertained, it is easy to deduce, by the rule of proportion, the quantity of solid matter of serum in the dried crassamentum, equivalent to the water which has been driven off. This quantity must be subtracted from the dried residue, and the remainder represents the sum of the fibrin and hematosin in the second portion of crassamentum; but it had been previously ascertained what was the proportion of fibrin alone in the first portion; and this, deducted from the weight of the fibrin and hematosin together, leaves the weight of the hematosin. Thus, the fibrin and hematosin in each portion of clot is ascertained, and, by doubling, their quantity in the whole of the crassamentum is known. Their total weight, subtracted from the whole weight of the blood, gives the weight of the serum, the proportion of solid matter and water in which is deduced from the first experiment of evaporating to dryness a small portion of the serum. Thus are ascertained the relative weights of the water, solid matter of serum, fibrin, and hematosin in a given weight of blood. Of course,

it is understood that, in an analysis of the blood conducted in this manner, the fatty matter, extractive, and salts are all included in the weight of the solid matter of serum, about three-fourths only of which are albumen. A more minute analysis of the serum may be conducted in the following manner, as laid down by Mr. Rees.

"A portion of serum destined for analysis is first to be carefully weighed: 200 grains is frequently used by chemists; but if the operator can afford to wait the requisite time for the evaporations, I should recommend that he use 1000 grains in his experiments.

"The weight of the serum being noted, it is now necessary to evaporate it to dryness over a water bath, and then, on ascertaining the weight of the dry extract, and subtracting it from that of the serum, we obtain the proportion of water contained in the specimen.

"The dry extract is to be carefully broken up in the evaporating dish, and then treated with boiling distilled water; care being taken that the heat be kept to 212° Fahrenheit at the moment of admixture, as otherwise the albumen is liable to assume a gelatinous form, which greatly interferes with the process. The quantity of water first added should be equal to about four times the bulk of the extract, and should serve to detach it from the sides of the evaporating dish; it then may be allowed to digest for a quarter of an hour, when it is to be thrown on a filter and allowed to drain. The contents of the filter are now again to be treated with boiling water, which is to be added by small quantities; a small portion of the liquor which passes through being occasionally tested with a solution of nitrate of silver, as it is necessary to continue the washings with boiling distilled water until the reagent above mentioned ceases to be affected by the percolating fluid. We in this way procure a residue B, and a filtered solution A.

"A, the solution, is now to be evaporated to dryness, and the result must be weighed, its weight being noted. The next step consists in adding to the dry mass about four times its bulk of hot alcohol, which should be allowed to digest for ten or twelve minutes. The first portion serves to place the extract on a filter, and when the filtration is finished, two portions of hot alcohol, each equal in bulk to half the first, are successively to be allowed to wash the residue which will be observed on the filter; thus we have formed a clear solution C, and a second residue D.

"C. This clear solution on evaporation yields the animal extractive, soluble in water and alcohol; this is to be dried over a water-bath, and its weight ascertained. From this datum we may likewise obtain the weight of the albumen combined with soda; which is done by subtracting the weight of the" animal extractive "from the weight of the solid matter of the solution A.

"D. This second residue is entirely soluble in distilled water, and consists of albumen combined with soda. Its weight may be ascertained directly, or inferred as above mentioned in process C.

"E. This residue is to be dried and weighed; successive portions of alcohol are now boiled on the mass until they no longer deposite" fatty matter "on cooling; these alcoholic washings are to be added together and evaporated over a steambath. The residue B is to be again dried and weighed; which will afford the proportion of albumen. The dried fatty matter may now be washed with cold alcohol, which dissolves the oily and leaves the crystalline fat; these may next be separately dried and weighed, to ascertain their proportion.

"The following processes are now necessary, in order to render the analysis complete, by the determination of the proportion of alkaline and earthy salts. With this view, we must first incinerate the albumen, and keep the residue at a red heat in a platinum crucible over a circular wicked lamp until all carbonaceous matter is dissipated; the weight of the residuum indicates the proportion of earthy salts with phosphate of iron: this weight must be subtracted from the original weight of the albumen (obtained by process B,) in order to arrive at the correct proportion of that animal principle."

The proportion of alkaline salts may next be ascertained by sepa-

rately incinerating the animal extractive, and the compound of albumen with soda, called albuminate of soda.

With a view to pathological inquiries, a simpler analysis of the serum, as remarked by Mr. Rees, may be made as follows:

1. The *water* is ascertained by evaporating a portion of the serum to dryness.

2. The *animal extractive and albuminate of soda,* together with the alkaline salts, will be obtained by exhausting the dry residue of the serum with boiling water, and evaporating the solution to dryness.

3. The new residue, not soluble in water, if exhausted by boiling alcohol, will give an alcoholic solution of the *fatty matters,* obtainable by evaporating the alcohol.

4. The residue, not attacked by the alcohol, will represent the *albumen with the earthy salts and phosphate of iron.*

5. The ashes obtained by incineration from the animal extractive and albuminate of soda will comprise the *alkaline salts.*

From what has been said it is perceived that the principal proximate animal constituents of the blood are fibrin, hematosin, and albumen. These three constituents have the same ultimate elements, united in nearly the same proportions, as is shown by the following table:

	Fibrin.*					Hematosin.†					Albumen.‡
Hydrogen	7.021	.	.	.	.	7.711	.	.	.	.	7.775
Carbon	53.360	.	.	.	.	53.231	.	.	.	.	49.750
Oxygen	19.685	.	.	.	.	21.666	.	.	.	.	26.925
Nitrogen	19.934	.	.	.	.	17.392	.	.	.	.	15.550
	100.000					100.000					100.000

The white, transparent, central nuclei of the globules in hematosin are considered by some chemists to be fibrin.

In the foregoing statements we have given the reader a view of the composition of healthy blood; but it must not be supposed that its constitution is invarible even in a state of health. The proportion of its constituents not only differs in the same individual at different times, but varies with age, sex, temperament, &c. The water is in greater proportion in the blood of women, or of persons of the lymphatic temperament, than in the blood of men, or of persons of the sanguine temperament; and the contrary is the case with regard to the fibrin, hematosin, and albumen. In relation to the subject of the variable proportions of the constituents of healthy blood, Lecanu has made a number of experiments, the results of which are reported by Mr. Rees in an Appendix; but the conclusions come to by Lecanu are not presented in a clear manner.

The healthy condition of the blood being understood, we are prepared to enter upon its examination in disease. This fluid may be diseased either from too great a departure from the normal proportions of its proper ingredients, or from the presence of foreign sub-

---

*Gay-Lussac and Thenard.   †From venous blood. Michaëlis.
‡From venous blood. Prout.

stances. The foreign substances, detected occasionally in the blood by analysis, are urea, colouring matter of bile, and cholesterine. Sugar has not been found in the blood, but as it exists largely in the urine in diabetes, it is probable that it exists occasionally in small amount in the blood.

To detect *urea,* the solid matter of the serum must be exhausted by hot water; and the solution, which contains the salts and animal extractive of the serum, as also the urea if present, must be evaporated to dryness. This residue is then exhausted by eight times its bulk of absolute alcohol at a gentle heat, which will dissolve the urea and extractive; and the alcoholic extract, obtained by evaporating the alcohol, is next to be dissolved in water, and the aqueous solution concentrated to the consistence of a thin syrup. The addition of a few drops of nitric acid will, after a short interval, give rise to the characteristic crystals of nitrate of urea, if this latter principle be present.

Lecanu has detected in the blood in jaundice the following foreign principles:—1. A combination of albumen and soda, scarcely soluble in water; 2. an orange-yellow colouring principle; 3. a blue colour-ing principle. The serum in this disease is described by Lecanu as follows: It has a sickly taste, and a saffron colour, which passes into a canary-yellow upon being diluted with water. It froths by agitation, and turns syrup of violets green, proving that it possesses an alkaline reaction. The yellow serum of jaundice is easily tested for bile by the addition of an equal quantity of dilute sulphuric acid, which, after the lapse of a few minutes, changes its colour to a delicate green.

In order to detect cholesterine, the serum is first evaporated to dryness over a water-bath, and the dry residue digested with ether for several hours. The ethereal solution is then decanted, and allowed to evaporate spontaneously. The ethereal extract will contain the fatty matters of the blood, together with cholesterine, if this be pre-sent. In order to determine this point, the extract is well washed with cold alcohol, which removes the oily fatty matter. If the resi-due contains cholesterine, its characteristic crystals will be obvious to the eye, and may be separated, with the point of a pen-knife, from the crystalline fatty matter of blood with which they are associated. This separation cannot be effected by any known test, in consequence of the great similarity between the chemical reactions of the crystal-line fatty matter and cholesterine. Indeed, it is still a matter of dispute whether cholesterine is or is not a constituent of healthy blood. M. Denis rejects it as such, while M. Boudet contends that it forms part of the oily fatty matter. Mr. Rees inclines to the opinion of M. Denis, but thinks that if the crystalline fatty matter cannot be viewed as cholesterine, yet its chemical habitudes are so similar to those of the latter substance, as to lead him to suppose that it may be cholesterine in an incipient form.

The average specific gravity of healthy blood may be stated at 1.052. In disease, it varies considerably from this healthy standard.

Dr. Babington has observed its sp. gr. as high as 1.061 in a case of diabetes mellitus, and as low as 1.031. As a general rule, the heavier the blood in disease, the more inflammatory the state of the system may be deemed to be; as a high specific gravity indicates a large proportion of hematosin, the heaviest ingredient of the blood, and at the same time that ingredient, the amount of which is directly proportional to the animal heat.

The sp. gr. of healthy serum is about 1.028, and its greater density than that of water depends almost exclusively on the presence of albumen; the salts of the serum being capable of raising the sp. gr. only 5 parts in 1000. Hence it is that the density of this fluid is a pretty accurate index of the amount of albumen which it contains. Thus in diseased kidneys, in dropsies, and in profuse hæmorrhages, in which albumen is rapidly carried out of the system, the sp. gr. of the serum has been observed as low as 1.013; whilst in malignant cholera, where the water and salts of the blood are principally removed, it has been found as high as 1.041.

The proportion of dry fibrin in healthy blood is but small, not more than 2.1 parts in 1000, according to the analysis which we have quoted, or 4.3 parts in 1000, taking the average laid down by Lecanu from more extended investigation. In disease, its relative amount is liable to be altered. Thus in complaints of debility, and in persons who have lost much blood, its quantity is lessened; in inflammations it is increased. Besides varying in amount, it undergoes a change in properties, especially in inflammatory diseases, consisting in a retardation of its coagulation, when the blood is drawn from the body. This retardation gives rise to what is called the buffy coat of the blood; for the delay in the coagulation affords time for the red particles to subside, an occurrence which is favoured by their relatively high sp. gr., while the fibrin is left free from these particles, producing that peculiar yellowish-white appearance on the clot called the buffy coat. All the circumstances, however, which influence this appearance are not well understood; and hence, unless the coagulum be firm and its surface cupped, no positive inference must be drawn that the inflammatory diathesis prevails. Buffy blood is most commonly found in peripneumony, inflammatory fever, scarlatina, eruptive diseases generally, and very uniformly in acute rheumatism. It is also frequently met with in the blood of pregnant women, of plethoric persons, and of those who frequently resort to bloodletting; and in cases of chronic gout, and enlargement of the heart. On the other hand this peculiar coat of the blood is sometimes absent during the existence of the most intense inflammation; and when this is the case, it generally makes its appearance after a second or third bleeding, upon the abatement of the inflammatory action.

We have already spoken of hematosin as being the heaviest ingredient of the blood, and as indicating by its excess the inflammatory and febrile diathesis, provided the lungs are in a state to communicate to it their due influence. This principle is the least destructible of the elements of the blood, and at the same time the most difficult to

be reproduced, after it has become deficient from repeated and large losses of blood. It appears, however, capable of undergoing essential alterations in its nature, whereby, instead of being insoluble in the serum, it becomes capable of percolating the vessels and tissues, giving rise to a stained condition of parts, as observed after death. This altered condition of the hematosin may be presumed to exist in passive hæmorrhages, petechiæ, and ecchymosis.

The albumen of the blood is liable to vary in amount; and the extent to which it varies from the normal proportion is pretty accurately indicated by the sp. gr. of the serum, as heretofore observed; its quantity being greater in proportion as the density of this fluid is higher. According to M. Gendrin, during the existence of inflammation, when the fibrin may be assumed to be increased, the serum contains twice as much albumen as in the healthy state; but Thackrah affirms the contrary proposition, to which he found no exception, that where the proportion of the fibrin is considerably above the natural standard, the solid matter of the serum is below it.

The fatty matter of blood is sometimes redundant, and gives rise to an opaque white appearance in the serum, called milky serum. Dr. Babington has ascertained that the albumen is proportionably deficient in this condition of the serum, its sp. gr. varying from 1.019 to 1.024.

The salts of the blood are subject to variation in their proportion in disease. Attention has been particularly drawn to this point by the researches of Dr. Stevens, the results of which are reported in his work on the blood, published in 1832. This writer has conclusively shown that solutions of certain salts have the power of communicating a florid colour to the blood out of the body, and that in certain diseases, in which the blood is characterized by its dark hue, the salts are deficient in quantity. He infers, from his observations and experiments, that the proportion of the saline ingredients of the blood exercises an important influence over the conditions of health and disease, which has been too much overlooked.

Having noticed the changes in proportion and character, to which the several constituents of the blood are most liable, we shall now call the attention of our readers to the more important diseases in which the blood is admitted to undergo a decided change.

In *inflammation*, the blood, whether it exhibits the buffy coat or not, invariably contains a larger proportion of fibrin. Sir Charles Scudamore found that the average quantity of dry fibrin in 1000 grs. of the clot of healthy blood, was 3·5 grs.; while its average proportion, deduced from the clot in seven cases of inflammatory affections, was 9·6 grs. in 1000. Mr. Jennings gives the result of his examination of the blood in eight cases of inflammation, in which the proportion of fibrin in 1000 parts was increased from 4·3 (Lecanu's average) to 9, 8, 11, 6, 5·3, 7, 6·9, 7; and the proportion of alkaline salts decreased from 8·37, the healthy standard, to 4·9, 4·8, 5·1, 4·3, 4·2, 4·4, 4, 5·6. Of all the varieties of inflammation, it is in acute rheumatism that the blood is most loaded with fibrin.

According to Dr. Stevens, the saline matter of the blood gradually disappears during the progress of *fever,* and is almost wholly wanting in its last stage. This fact has been confirmed by Mr. Jennings, who made an analysis of the blood in six cases of continued fever. The general result of Mr. Jennings was that the salts were reduced to about one-half.

The blood in *scurvy* has not yet been made the subject of chemical analysis. In the first stage of the disease it flows from the arm in light and dark streaks of different shades. As the affection advances, it runs thick and black, and, after standing, becomes thick and of a dark muddy colour, the surface being here and there of a greenish hue, without a regular separation of parts. In the third stage, it is as black as ink.

In *jaundice,* the blood is tinged with bile, evident in the serum, as also in the crassamentum when covered with the buffy coat, which, if removed, and dried in a state of tension, will exhibit a deep yellow hue. The manner of testing jaundiced serum with dilute sulphuric acid has already been mentioned. According to Collard de Martigny, even the resin of bile may be detected in jaundiced blood; and this assertion has been confirmed by others.

In *diseases of the kidneys,* characterized by anasarca and albuminous urine, the albumen of the blood is more or less deficient, as may be ascertained by taking the sp. gr. of the serum, which is always lighter in proportion to the deficiency of this animal principle. In these diseases, the crassamentum is for the most part thickly buffed, and generally of a firm consistence. The serum is occasionally turbid, and upon standing throws up a white creamy substance, devoid of proper oily matter. When the serum is exposed to heat, the coagulum formed is found to contain an unusual number of cells, and a great quantity of serosity, in which latter Dr. Babington has detected urea. After the extirpation of the kidneys, MM. Prevost and Dumas have proved that urea exists in the blood, a fact which demonstrates that this principle of the urine is not formed but merely abstracted by those organs. It would seem that, in states of disease, where the albumen passes off by the kidneys, urea is more or less retained in the blood. Where the blood thus becomes charged with urea, various effusions, such as into the pleura, pericardium, peritoneum, and the ventricles of the brain, are found to contain it in small quantity.

The blood in diabetes has not been successfully examined. Dr. Babington confirms the fact, first mentioned by Rollo, that it resists putrefaction for a longer time than healthy blood. Sugar has never been detected in it, though searched for by some of the most eminent chemists. This fact may be explained plausibly by supposing that, in diabetes, the sugar passes off by the urine as soon as formed. No doubt, if the kidneys were extirpated from a diabetic patient, the saccharine matter would be readily detected in the blood.

In *malignant cholera,* the blood is generally thick and dark, resembling molasses. The sp. gr. of its serum is high, and the

quantity of solid matter which it contains, is sometimes double that found in the serum of healthy blood. Cholera blood has been ana- lyzed by Dr. Turner, Dr. Thomson, Prof. Hermann, Messrs. Rose and Wittstock, Dr. Rayer, M. Lassaigne, M. Lecanu, and Dr. O'Shaughnessy, and their concurrent results prove that it contains less water and salts, and more albumen and hematosin than healthy blood. The salts, indeed, are in unusually small amount.

In *chlorosis*, the blood is generally thin, light-coloured, and weakly coagulable, being deficient in fibrin, and particularly in hematosin. In two analyses of chlorotic blood made by Mr. Jenkins, the albumen and salts were in the usual proportion; but, while the water was redundant, the hematosin was reduced to considerably less than one- half the healthy standard.

We have, thus, in a hasty manner, noticed the particular changes which the constituents of the blood undergo in disease, as also those affections in which this fluid presents the greatest departure from its normal characters, taking as our text and guide on these points, the excellent essay of Dr. Babington. In so short and hasty an article as the present, it is impossible to give more than a mere outline of the chemical physiology and pathology of the blood. Those of our readers who wish details must consult the treatises and detached essays of Hewson, John Hunter, Bostock, Brande, Dowler, Thackrah, John Davy, Scudamore, Engelhart, Christison, Turner, Velpeau, Denis, Stevens, O'Shaughnessy, Prevost and Dumas, the Edwards's, Le- canu, &c., and the chemical systems of Berzelius and Thenard.

In the works, the titles of which we have placed at the head of this article, we see nothing to criticise, except, perhaps, a statement in the report of Mr. Jennings, p. 51, given on the authority of Berzelius, that the nicest tests do not discover any iron in hematosin until after it has been incinerated. This was the original statement of Berzelius; but since the appearance of the admirable prize essay of Dr. Engel- hart, presented to the medical faculty of Gottingen in 1825, the Swedish chemist has awarded the meed of praise to this experiment- alist for having removed the obscurity which previously hung over this subject. Thus Berzelius states in the seventh volume of his "Traité," p. 62, that Engelhart was enabled, by means of a current of chlorine passed through an aqueous solution of hematosin, to precipi- tate the animal matter in white flocks, affording no ashes on incinera- tion, and to obtain a colourless liquid, which contained all the iron in solution, discoverable by the usual ferruginous tests. Indeed, it is quite remarkable that neither of the authors, whose works form the more immediate basis of this article, mention the name of Engelhart, though his memoir was easily accessible, it having been republished in the Ed. Med. and Surg. Journal for January, 1827. Upon the whole, however, Mr. Jennings's essay is a creditable performance; and we have only to regret that our space has not permitted us to embody more of the pathological facts, connected with the chemistry of the blood, which it contains.

Mr. Rees's work is accurately and perspicuously written, and

affords internal evidence of having been composed by a well informed chemist. His directions for the quantitative analysis of the blood and urine, carried in minuteness to the extent only that is necessary to elucidate pathological inquiries, may be safely followed by physicians who may wish to pursue these interesting branches of research. The essay of Dr. Babington also may be consulted with profit by our readers, as presenting a well digested summary of what is known in relation to the morbid conditions of the blood.

When we commenced this article, we had proposed to give a sketch of the chemistry of the urine in health and disease; but our remarks have already extended to a sufficient length; and we are, therefore, reluctantly obliged to omit any observations on this interesting subject.   F. B.

BIBLIOGRAPHICAL NOTICES.

ARTICLE XV. *Ueber das Pfortaderblut. Eine Chemisch-Physiologische Untersuchung.* Von Dr. C. H. SCHULTZ, Professor der Heilkunde in Berlin. pp. 42. Rust's Magazin für die gesammte Heilkunde, Bde. 44. Berlin. *Chemical and Physiological Researches on the Blood of the Vena Portæ.* By Dr. C. H. SCHULTZ, Professor of Medicine in Berlin, &c.

It was long since affirmed by well-informed physiologists, that the blood of the vena portæ differs essentially in many of its properties from that of the arteries and the general venous system. This opinion, which was at first chiefly predicated upon the difference of aspect presented by this portion of the circulating fluid, was subsequently called in question by the chemists, who declared that they could not, by the most careful analyses, detect any dissimilarity of composition in the portal and general venous blood. These assertions, coming, as they did, from such a source, had the effect of abating the confidence of physiologists in the belief that had been generally prevalent from the earliest periods of the science, and, as the subject has never been sufficiently investigated, the question still remains in a state of uncertainty. Even the researches which have been instituted, have not been conducted in such a manner as to lead to satisfactory or conclusive results—most of those who have had the subject under consideration, having confined themselves, exclusively, either to the examination of the chemical or physiological properties of the portal blood— Dr. Schultz very properly remarks, that legitimate inferences can only be deduced by combining the two methods of investigation; and this is the course which he has pursued in conducting the researches, the general results of which we propose to lay before our readers.

As it would be impossible to obtain portal venous and arterial blood from the human subject, in sufficient quantity for investigations of this kind, Dr. Schultz had recourse to animals, in which his labours were greatly facilitated by Gurlt, professor at the Veterinary School. It should be remarked, however, that only the results of the chemical experiments are detailed in this paper, the physiological being reserved for a separate work.

External properties of the Portal Venous Blood.—Dr. Schultz coincides in the general representation of authors, that the portal blood is of a darker colour than that of the general venous system. He remarks, however, that it varies considerably, and is often observed passing by insensible shades into the colour of the latter fluid. He found it exhibiting the darkest colour in horses during the state of fasting; but, after full feeding, it exhibited nearly the shade of venous blood. Its colour is indeed much more liable to vary, than that of either the blood of the arteries or the veins. The deep dark reddish coloured portal blood of a horse, mixed with muriate of soda and nitrate of potash, underwent no appreciable change of colour, while venous blood, treated in the same way, was converted into a bright red. On the other hand, portal blood of a lighter colour, was slightly reddened by neutral salts, but in a much slighter degree than common venous blood. Nearly the same difference was observed on exposing the two fluids to the atmosphere, the portal blood being but slightly or not at all changed, while that taken from the veins was manifestly reddened.

Dark portal blood, when freely shook in a closed vessel, with oxygen gas, was changed very slightly: venous blood treated in the same way, was converted into a bright red colour. The addition of the nitrate of potash and muriate of soda, to dark portal blood, scarcely coagulated it, even on the addition of water. The coagulation did not take place until after the expiration of some hours, and was extremely feeble, while venous blood, treated by the same agents, was firmly coagulated in the space of from five to ten minutes. Sulphuric ether, and a concentrated decoction of tobacco, produced the same effect on the blood of the general venous system, that they did on that of the vena portæ. Half an ounce of alcohol, of the strength of 54°, added to two ounces of portal blood, coagulated the lymph in form of flakes, but the blood itself remained fluid, and the globules were not apparently changed. No difference of taste could be observed in the portal and venous blood, except that the former was somewhat more mawkish, but never bitter.

Coagulability.—It was generally remarked by most of the earlier observers, that the blood of the vena portæ was always found in a fluid state after death, whence they inferred that it could not coagulate. Tiedemann and Gmelin, however, found that the fresh blood of the splenic vein coagulated readily, and did not differ sensibly from common venous blood. According to the observations of Dr. Schultz, dark portal blood, taken from a horse immediately after death, generally remained perfectly fluid, while that which was of a lighter colour, often coagulated as promptly as the venous blood. The coagulum, however, differed notably from that of both arterial and venous blood; the coagulum was always very loose, and, after twelve or twenty-four hours, became perfectly fluid, or subsided in form of a proper sediment upon the bottom of the vessel, and never presented itself in form of a solid concrement, floating in the serum. The portal blood, which was incapable of coagulating, deposited a similar sediment, consisting of its cruor, leaving the supernatent serum clear and transparent. The cruor of the portal blood was precipitated with extraordinary facility, during the agitation of the fluid, and the same thing was repeated after shaking it up, when it had already subsided. This, Dr. Schultz ascribes to the great quantity of colouring matter which adheres to the circumference of the globules, and is with difficulty suspended. In some cases, this blood was found in the vessels in a state of coagulation, several hours after death, but the coagulum always assumed again the fluid condition. It is thus apparent, that the ancient opinion, which inferred the non-coagulability of the portal blood, can be easily reconciled with that advanced by Tiedemann and Gmelin, since, as remarked above, the dark coloured portal blood does not coagulate, and although that of a lighter colour does undergo that change, the coagulum again becomes fluid after the lapse of some time.

Quantity of Portal Blood.—To ascertain this point, Dr. Schultz destroyed a horse by bleeding him to death. On opening the portal vein, between four and five ounces of blood flowed out spontaneously. About the same quantity was afterwards squeezed out of the splenic and mesenteric veins, making, in all, from eight to ten ounces. From the portal system of another horse, which was killed by a blow on the head, he obtained ten ounces and eight drachms.

Proportion of Fibrine or Coagulable Lymph contained in the plasma of the Portal Blood.* (Pfortaderblutplasma.)—The imperfect and feeble coagulation

---

*In order to avoid confounding the plastic portion of the living blood with the solid products formed by coagulation, Dr. Schultz has proposed the introduction of the term *blood plasma* to represent the first. The following explanation will serve to express his meaning. "The living blood consists of two parts. The first we denominate *plasma*, the second *cruor*. The cruor consists of globules which are suspended in the plasma. By the process of coagulation, the plasma is separated into two portions, serum and fibrin or plastic lymph; so that, generally, the cruor combined with the fibrin forms the blood globules. Should the contact of the air be excluded, the cruor subsides in the plasma before coagulation takes place, and the latter is separated in form of a colourless fluid, which subsequently coagulates, and has its plastic lymph (fibrin) separated from the serum." p. 10.

of the portal blood, indicates that its plasma contains a smaller quantity of fibrin than that of arterial and common venous blood. To ascertain the quantity of this material, Dr. Schultz performed four experiments on the portal blood of horses. The blood employed in the two first was obtained from animals, which had been keep fasting for some time before they were killed: the third animal had been allowed food, during the twenty-four hours preceding death; and, in the fourth experiment, the blood was whipped, in order to prevent coagulation. We shall omit the details of the experiments, and content ourselves with furnishing a tabular view of the results of each.

The portal blood was found to contain:—

							Wet Fibrin.	*Dry Fibrin.*
In the 1st experiment,	-	-	-	-	-	1.75	0·38
2nd ,,	-	-	-	-	-	-	0·98	0·38
3d ,,	-	-	-	-	-	-	1·20	0·20
Medium quantity,		-	-	-	-	-	1·31	0·32
In the 4th experiment, in which the blood was								
whipped,	-	-	-	-	-	-	0.78	0·05

The quantity of fibrin obtained by whipping was, therefore, less than that obtained by coagulation,   -   0·53   0·27

Medium quantity obtained by whipping and coagulation, - - - - - - - -   0·45   0·29

In order to determine the quantity of fibrin contained in the arterial and common venous blood of the same animals, Dr. Schultz next performed three experiments, in the two first of which the blood was treated by coagulation—in the third by whipping.

The following are the results obtained in the first of these experiments:—

				Wet Fibrin.	*Dry Fibrin.*
(*a*) The arterial blood afforded	-	-	-	6·10	1·04
(*b*) venous ,,	-	-	-	6·98	1·09
Medium	-	-	-	6·54	1·06

As, therefore, the medium quantity of fibrin obtained from the portal blood by coagulation was   -   1·31   0·32

It contains less fibrin than the arterial and venous, by - - - - - - - - -   5·23   0·74

The third experiment, in which the blood was treated by whipping, afforded the following results:—

						Wet Fibrin.	*Dry Fibrin.*
(*a*) Arterial blood,	-	-	-	-	-	2·13	0·53
(*b*) Venous,	-	-	-	-	-	3·04	0·81
(*c*) Arterial and venous blood,	-	-	-	2·87	0·75
				Medium,	2·68	0·69

Portal blood affords by whipping,   -   -   -   0·78   0·27

contains less fibrin, according to this experiment, - - - - - - - -   1·09   0·42

The greater firmness of the buffy crust which forms in the blood of pregnant women, and in that drawn in certain states of inflammation, than of the crassamentum of healthy blood, Dr. Schultz thinks should be attributed to an increase in its fibrinous constituents. In order to test the validity of this conjecture, he instituted several experiments, the results of which are communicated. The blood was received as it flowed from the vessel in a portion of calf's intestine, having a funnel attached to the upper end. The intestine, after being filled,

was suspended by one extremity, either free or surrounded by paper, until the globules subsided, and the supernatant plasma became clear and transparent. In order to separate the clear fluid above, from the cruor in the lower portion of the tube, a string was drawn firmly round the latter, on a level with the line of demarcation between the two portions of the fluid, so as to completely isolate them.

The experiments were somewhat varied; but the following tabular view shows the ratio of the products obtained:—

	Wet Fibrin.	Dry Fibrin.
1. Plasma of venous blood separated in a portion of intestine, in the manner explained,	5·94	1·27
2. The same in connexion with the cruor,	2·21	0·57
Preponderance in the pure plasma,	3·73	0·70
Medium in both,	4·07	0·92
3. Plasma of the arterial blood, coagulated in the open air,	7·33	1·52
4. The same in connexion with cruor,	1·45	0·34
Preponderance in the plasma,	5·88	1·18
5. Plasma of arterial blood coagulated in a portion of intestine,	5·21	1·19
If the result of this experiment be compared with that obtained in No. 3, it will be seen that coagulation in the intestine afforded less fibrin by	2·12	0·33
6. Venous blood, mixed with salt, afforded fibrine,	2·04	0·48
Giving less than in 1 and 2,	2·03	0·44

From these experiments, Dr. Schultz infers that the plasma of the blood cannot be properly considered as a mere chemical solution of fibrin in serum, but that it is a vital condition, which, by the process of coagulation, furnishes, under different circumstances, and according to the influences to which it is exposed, variable quantities of serum and fibrin—a result, which he thinks could not be obtained, if the fibrin merely existed in a state of chemical solution in the serum.

Solid Constituents of the Portal Blood in particular.—Under this head, we have a detail of some experiments made upon portal, arterial, and venous blood, taken from horses, both during fasting and after free feeding. We shall merely give the results.

In the first three of these experiments, the portal blood was found to contain solid constituents in the following proportions:—

In the 1st experiment,	16·6
2nd ,,	16·95
3d ,,	17·2
Medium in the blood taken during fasting,	16·90

Arterial blood obtained from horses during fasting, furnished in the 5th experiment.

Solid constituents,	15·54·
Venous blood from the same horse,	18·6
Medium,	17·01·

Consequently, portal blood was found to contain less of solid constituents in animals, during the state of fasting, than the arterial and venous blood of the same in the proportion of   0·18.

The portal blood in the 4th experiment of this series,
taken from a horse which had been fed freely on oats,
furnished of solid constituents, - - - - -   20·3
   The venous blood of the same animal, - - -   19·5
   The arterial blood   do.   - - -   22·91

     Medium of the arterial and venous blood,   20·7
   The quantity of solid parts in the portal blood in the
horse, after free feeding, was less than the medium of
the arterial and venous blood in the same, - - -   0·3

   Relative Proportion of Albumen and Salts contained in the Serum.—It is inte-
resting to know, what is the proportion of albumen and cruror contained in the
solid parts of the blood, and to ascertain whether the same notable difference
in quantity exists in these constituents, as is the case with the fibrin in the ar-
terial and venous blood. In the experiments which were instituted in reference
to these questions, the serum was observed to be transparent, both in the blood
taken from horses during fasting and after feeding. In horses which had been
previously fed, in which the chyle was found milky, this appearance could
not be discovered in the serum of the blood.

   Five experiments on the three species of blood furnished the following re-
sults:—

The portal blood furnished in the 1st experiment of
this series, (fasting,) - - - - - - - -   8·16
     Do.   do.   2nd   do.   (fed,) - -   9·67·

                   Medium,   8·90·
Arterial blood, in the 3d experiment, (horse fasting,) - -   9·86
     Do.   4th   do.   (horse fed,) - -   11·11

                               10·48
            Preponderance over portal blood,   1·58
Venous blood afforded, in the 5th experiment, (animal fasting,)   7·96
     Do.   6th   do.   (do. fed,)   11·45

                        Medium, ʼ   9·70
Greater than from serum of portal blood, - - -   0·80

   We have next a detail of several experiments, made with the view of ascer-
taining the relative quantity of cruor in the three species of blood. We shall
not give the numerical results, but merely state Dr. Schultz's inference. It is,
that the portal blood contains relatively more cruor and less albumen than that
taken from the arteries and veins. The two last species of blood, on the con-
trary, constantly contain less cruor and more albumen than the portal, a differ-
ence which accords perfectly with the phenomena observed during coagulation,
in which, as previously remarked, the globules of the portal blood, surrounded
by a thick crust of colouring matter, subside to the bottom of the vessel much
more promptly than those of common venous blood.

   Oily constituents.—The oily constituents of the portal blood afford much in-
terest, on account of their relations with the albuminous and other materials of
the bile, abounding in carbon. The experiments of Dr. Schultz on this subject
show, that the portal blood contains nearly double the quantity of fatty matter
that exists in the arterial and venous blood. Dried serum was found to contain
0·27 per cent less oily matter in the arterial and common venous, than in the
portal blood; and similar experiments on the cruor showed 1·21 per cent. less
oily matter in the two former species of blood, than in that of the vena portæ.

   Dry fibrin was found to furnish a difference not less striking—that of

Arterial blood furnished of oily matter,	-	-	-	-		2·34
Portal blood,	-	-	-	-	-	-	-	-	10·70

Difference   8·36·

Similar experiments on the serum of chyle, furnished of fatty matter 15·43 per cent. But this fatty matter differed essentially from that obtained from either of the three species of blood. Two-thirds of it remained fluid, like vegetable oil, and was of a white colour. About one-third was of the consistence of tallow, of a crystalline appearance, and in colour similar to the fat obtained from arterial and venous blood.

Having thus given a hasty summary of Dr. Schultz's interesting experiments, it only remains for us to present the conclusions which he has deduced from the entire series.

Conclusions.—"The portal blood differs from that of the arterial and general venous system, in the following particulars:—

"1. The portal blood is always darker than the venous, notwithstanding it is sometimes difficult, with the eye, to distinguish the difference. The very dark portal blood is not reddened either by neutral salts or exposure to the atmosphere, and but slightly by oxygen gas.

"2. The portal blood either does not coagulate, or when it does undergo this change, the coagulum is much feebler than that of venous blood, and again assumes the fluid state after twelve or twenty-four hours, when a dark coloured deposite takes place, as in portal blood, which has not coagulated, leaving a supernatent transparent serum.

"3. Portal blood contains 5·23 per cent. moist, or 0·74 dry fibrin less than arterial or venous blood. By whipping 1·9 per cent. less moist, or 0·42 dry fibrin is obtained from portal than from arterial or venous blood.

"4. Fluid portal blood contains about 0·18 to 0·3 per cent. less of solid constituents than arterial and venous blood.

"5. Serum of the portal blood contains, on an average, 1·58 per cent. less of solid constituents than that of the arterial, and 0·80 less than that of venous blood. The exsiccated serum of the portal blood is of an ash gray colour—that of the venous, yellowish-green, and of the arterial, yellow.

"6. Portal blood contains more cruor and less albumen. In arterial and venous blood the proportions are reversed. The dry cruor of the portal blood is of a dirty grayish-brown colour; that of the venous is dark red: the arterial is bright red.

"7. The solid constituents of portal blood contain nearly twice the quantity of fatty matter that exists in the arterial and venous blood; the proportion in it being 1·66; in the arterial blood only 0·92, and in the venous 0·83.

"8. The dried serum of the portal blood contains nearly 0·27 per cent. more fatty matter than that of the arterial and venous blood.

"9. The albuminous portion of the cruor of the portal blood contains, in the dry state, 1·11 per cent. more fat, than that of the arterial, and 1·21 more than the cruor of the venous blood.

"10. The greatest difference is observed in the fibrin. The dried fibrin of the portal blood contains 10·70 per cent. of fat; that of the arterial blood only 2·34, presenting a preponderance of fat in the former of 8·36 per cent.

"11. The fat of the portal blood is of a dark brown greasy appearance; that of the arterial and venous blood is of a whitish yellow colour, and crystalline texture. The fat of the chyle is white, two-thirds of it fluid, and one-third crystalline."

The subjects involved in this paper are of great importance in a physiological, as well as in a pathological point of view. The functions performed by the liver are still involved in much obscurity, and to enable us to arrive at any satisfactory conclusion in regard to the object of the great quantity of venous blood which is circulated through its substance by the vena portæ, one step certainly must be, to ascertain the qualities of that blood, which, differing as it

does in many essential particulars from that pertaining to the general circula-
tion, is undoubtedly designed for some important end. E. G.

ART. XVI. *Symbola ad Curationem Phthiseos Emendandam. Commentatio qua
Viro Perillustri* CHRISTOPH. GUILIELMO HUFELAND *doctoratus in Medicina
impetrati Semisesularia gratulatur Universitas Literarum Regimontana inter-
prete* LUDOVICO GUILIELMO SACHS, Facultatis Medicæ H. T. Decano. 4to, pp.
24. Regimontii, 1833.

*Contributions designed to improve the Treatment of Phthisis, being a Gratulatory
Comment, addressed to the celebrated* CHRISTOPH. WILLIAM HUFELAND, *on the
occasion of his attaining the fiftieth year of his service in the Medical Profession.*
By LUDOVICO GUILIELMO SACHS, Dean of the Med. Faculty, &c.

In order to enable some of our readers to understand a part of the title of this
brochure, it may be proper to remark, that a custom prevails in Germany
amongst the members of the medical profession, of celebrating as a jubilee, the
termination of fifty years service in the practice of the healing art, on the part of
distinguished individuals. Such occasions are commemorated by festivities,
gratulatory addresses, and all the ordinary methods of conferring honours, con-
sistent with the objects of the ceremony. The custom has in it, we think,
much to commend, and deserves to stand higher in the estimation of the philan-
thropist than all the gaudy pageantry attendant upon the act of conferring the
civic crown upon the victor, or the insignia of power upon some ambitious des-
pot. Within a few years several jubilees of this kind have been celebrated—in
honour of the veteran Blumenbach, of Sœmmering, and last, of Hufeland, the first
and the last of whom still live to enjoy the laurels so justly awarded to them
by their professional brethren in all parts of the world; and it was on the occa-
sion of paying this customary tribute to the last distinguished individual, that
Dr. Sachs gave publicity to the small memoir which forms the subject of the
present notice.

It may be justly said, that with Bayle and Laennec commenced a new æra
in the pathology of phthisis pulmonalis. Notwithstanding the valuable con-
tributions of their predecessors, the nature of this formidable disease was but
very imperfectly understood, until they, by repeated and laborious investiga-
tions, threw new light on the most obscure parts of its pathology, by furnishing
a rational explanation of tubercles, and pointing out the changes which these
morbid products undergo, as well as the consequences to which they give
rise. Still, with all the important additions they have made upon this sub-
ject, and, with the invaluable contributions which have been subsequently
elicited, in consequence of the new direction given by them to researches
of this kind, the treatment of phthisis, though certainly conducted upon more
rational principles than in former times, is not productive of that ratio of suc-
cess which ought to be obtained in a disease, the pathology of which is so well
understood. This want of success might, perhaps, be referred to several causes,
the exact influence of each of which cannot, at present, be correctly appreciated.
One of these causes might, doubtless, be traced to the nature of the organ affect-
ed, its importance in the animal economy, and the extent to which its structures
become involved. Another, we are inclined to think, may be, that we are not
properly acquainted with the nature of the changes which take place in the
tuberculous masses, especially of those modifications which occur in the por-
tion of the pulmonary tissue adjacent to the site occupied by these adventitious
developements. The question has often been asked, how are tubercles soften-
ed or disorganized? But, notwithstanding the various attempts to afford a

satisfactory answer, the sentiments of pathologists still remain contradictory, and the subject itself involved in much obscurity. The explanations advanced by Bayle and Laennec, if explanations they can be considered, are far from being satisfactory or conclusive, and it must be apparent to every one competent to form an opinion on the subject, that until we can more correctly comprehend the process by which tubercles are generated, and the organic acts by which they are disorganized, the principles by which our therapeutics are directed must be somewhat equivocal.

Dr. Sachs takes it for granted, that the developement of tubercles is dependent upon a state of organic erethism, which has inflammation for its element or substratum. All diseases, he affirms,—phthisis as well as others,—which are associated with the generation of purulent matter, require some degree of inflammation, as well in their progress, as in their absolute condition at the time, to give rise to the generation of that fluid, p. 13. The absence of the ordinary open manifestations of inflammation, he thinks, cannot be received as an argument that that condition does not exist, since in its chronic forms, in which it is competent to generate purulent matter, its symptoms are so obscure, that, with the older pathologists, we may with justice affirm that it is occult. The admission of this proposition, Dr. Sachs regards as very important, in regulating the treatment of the disease, and, the denial of it, one of the reasons why our remedies are often attended with such bad success.

Besides this, however, there are several causes which render it difficult to treat phthisis with success. Several of these are detailed by the author as follows:—

In the first place, it is the tendency of every inflammation of a slight degree of intensity, in an organ possessing so little sensibility, however limited it may be at the commencement, to diffuse itself much more extensively in the substance of the tissues, before its effects become sufficiently apparent to attract attention. Even though chronic inflammation of the lungs could be detected in the early stage of its developement, it is well known, that it cannot be treated with the same success as an acute degree of inflammation, implicating those or other organs. And, in addition to this, in every inflammation originating in the lungs, under the operation of a common cause, whether it occupy one or many points—whether these be of limited or of great extent, each one of these points should be considered as becoming the seat of a distinct abscess or ulcer. Now, it is well known, that, in the case of every ulcer, three leading conditions are necessary, viz:—that its surface should be kept in a quiescent state; that the contact of the air should be excluded; and, finally, that the matter secreted from its surface should have a free exit. In the disease under consideration, these conditions are not only absent, but others of an unfriendly character are present, which tend incessantly to superadd new difficulties in the way of success.

Another great obstacle to success is, the remarkable disposition of individuals affected with phthisis, to cheat themselves by a fatal delusion in regard to the nature and consequences of their malady. Even in the midst of danger, they easily persuade themselves that they are safe, and under the influence of pain and suffering, they are so buoyed up, that a thought or apprehension of death does not ruffle the serenity and brightness of hope for a single moment. This peculiarity of the disease encourages a fatal security. No mischief being apprehended, the ravages of the morbid process are allowed to progress unrestrained, and if advice is sought, it is so loosely followed, that the time for doing good is allowed to pass, until in the end, distruction becomes so firmly rooted, that no earthly power can displace it.

An additional obstacle to success is, according to Dr. Sachs, the keen, sometimes, indeed, preternatural appetite often possessed by phthisical patients,

even up to the period of death, except where the disease is associated with some abdominal affection. There are but few practitioners of much experience, who have not had occasion to witness this peculiarity, which is sometimes so strongly developed, that all fears of death seem to be completely arrested by the craving for food, although the powers of life may be on the point of yielding up the conflict under the last struggle. This great desire of food, especially during the early stages of the disease, and while the alimentary canal remains in a healthy condition, has been supposed by some to be a kind of instinctive call of nature, to obviate the emaciation; but however this may be, no one can be ignorant, that indulgence under such circumstances, tends greatly to give rise to additional disturbances of function, to develope new complications, and rather to increase than to prevent the emaciation.

The author thinks, that, in phthisis, the nerves which supply the lungs and the stomach are in a state of preternatural excitability, associated with diminished energy, a condition which he denominates *atoniam versatilam*, and that repletion of the stomach not only proves mischievous by its mechanical agency, in preventing the descent of the diaphragm and the consequent free play of the lungs, but also, by morbidly affecting the nerves common to both organs. When, therefore, individuals affected with this disease, are induced by the cravings of appetite to indulge freely in food, even though they may not be conscious of committing an excess, they experience immediately an increase in the embarrassment of respiration and their feeling of discomfort; the circulation is accelerated, and manifest febrile phenomena are developed, where none were evident before; or, if fever already existed, the symptoms experience a notable exasperation; but what is still more than this, the organ already affected being by this cause seriously oppressed and embarrassed in its actions, and having, at the same time its vital acts preternaturally stimulated by the febrile disturbance, becomes the focus of additional derangements, and the inflammation implicating its textures is increased in intensity. In addition to this, the digestive function is impaired by the supervention of the febrile action, and as the food cannot be converted into healthy chyle, the properties of the blood become deteriorated, rendering it unfit for the purposes of nutrition, and the formation of healthy secretions and excretions.

These considerations, the author remarks, have induced him, for several years past, to pay particular attention to diet in the treatment of phthisis, and, instead of allowing patients to indulge in a considerable quantity of food taken at the usual period of meals, to restrict them with great severity to a small quantity of easy digestion, to be taken every hour, or every two hours, so that they should neither experience too much hunger, nor indulge to such an extent as to produce the sensation of satiety. The result of this course of procedure in those individuals, (unfortunately too few in number,) who could be prevailed upon to carry it out strictly, were highly salutary.

The following are the axioms prescribed by Dr. Sachs, to be observed in the treatment of phthisis:—

"1. "No course is better adapted to the mild degree of chronic inflammation which exists in phthisis, than a course of diet, artificially apportioned to the degree of hunger, as well on account of the efficacy of such a course in averting the disposition which this grade of inflammation has to terminate in the developement of various morbid products, as pus, hypertrophy, pseudo-organized formations, &c., as the agency of hunger in destroying the plastic materials which are generated. It will be constantly observed, under a proper adherence to this dietetic discipline for some time, that when the patient is constantly kept in a state of slight hunger, the cough, if before constant, severe, and harassing, will be greatly mitigated, and rendered far less frequent.

"2. Not only does the preservation of the individual in this state of slight hunger, restrain the chronic inflammation, and, with it, the generation of purulent

matter, but it also destroys the tendency which the irritation, excited by this cause, has to develope new foci of inflammation, and by promoting the absorption of the pus already poured out, renders it innocuous. What, in effect, can contribute more than hunger to increase the process of absorption? That we may be enabled to fully appreciate all the importance of this point, it is necessary that we should free ourselves of a great and common error, which supposes that the absorption of pus into the blood is productive of mischievous consequences. Pus, indeed, (I do not mean sanies or an ichorous fluid,) consists of a plastic material, closely allied in its properties to the blood, and cannot, consequently, by its introduction into, or its admixture with that fluid, tend to promote its corruption. The common error upon this subject could only have originated in a false interpretation of the phenomena observed in many cases of hectic fever, in which it was inferred that the disease owed its origin either to an effusion of purulent matter, an obstacle to the escape of that fluid, or some perversion of its properties. In these cases, however, the cause is not to be sought in the absorption of pus into the blood, and a contamination of that fluid, (a thing which physiology teaches cannot happen.) In the first place, the great loss of plastic materials of the blood which are consumed in the generation of pus, may very readily give rise to hectic fever. Hectic, in the second case, may, indeed, be induced by the irritation occasioned by the pus; but hectic from the third cause mentioned, is not induced by the mere passage of pus, properly so called, into the blood, but by that fluid becoming perverted in its qualities, or converted into a kind of sanies, which being conveyed into the circulation, produces the mischief in question. If, indeed, the mere absorption of pus into the blood were capable of so contaminating and corrupting that fluid, as to produce such mischievous consequences, I would inquire how it is that we every day see abscess easily healed, even without the assistance of art?

"3. The dietetic treatment which we have recommended, if continued for some time, by supporting the strength of the patient, diminishes and mitigates the fever, which is not observed to exacerbate after the individual has partaken of the very moderate allowance of food prescribed for him.

"4. The emaciation, even in desperate cases, is retarded, and the strength of the patient is improved; sometimes, indeed, the mass of the organic solids is increased.

"5. The colliquative discharges by the bowels and skin, are prevented or checked, where they already exist.

"6. The nights are rendered more tranquil, the sleep more placid and refreshing, and, what is of immense importance in this disease, it will seldom be necessary to resort to opiates."

The suggestions offered by Dr. Sachs deserve to be carefully considered. Few, we presume, have had much reason to be very well satisfied with any course of practice they may have tried in this disease. Any attempt, therefore, especially one which, like the present, purports to be grounded upon many years' successful experience, certainly merits a fair and candid examination. If the views are erroneous, let the error be exposed; if correct, the advantages will be immense.   E. G.

Art. XVII. *Nosologische Therapeutische Beobachtungen.* Von Dr. Johann Carl Adolph Biermann, Königlich Hannoverischen Hofmedicus, Land-und Stadt-Physicus, zu Peine, pp. 75. Hildesheim, 1833.
Nosological and Therapeutical Observations. By John Charles Adolph Biermann, Physician to the Royal Court of Hanover, &c.

This small brochure contains several papers on different subjects, purporting to be the fruits of the author's experience in the course of several years' practice. The first of these papers contains a brief sketch of several scarlet fever epidemics. We do not, however, find in it any thing of sufficient importance

to call for its publication in the present form, and we think Dr. Biermann, if he was ambitious of authorship, might have been content to have confined these observations to the pages of some periodical Journal. The disease, as noted by him, seems to have differed somewhat in different years of its visitation, but, in nearly all cases, was attended with inflammatory symptoms at the outset, followed by ataxic phenomena. The treatment pursued was strictly antiphlogistic, and, in the epidemic of 1828, Dr. Beirmann remarks that the application of leeches to the throat, in the early stages of the disease, was indispensable, in order to prevent a fatal determination to the head. A refreshing regimen, cooling laxatives, consisting of sulph. magnesia with tamarinds, occasional doses of calomel, alternated with the draught of Riverius, and the repeated application of sinapisms, were the remedies in which the author placed his chief confidence in the early stage of the disease.

The highly exalted sensibility of the skin, which is so often observed as a sequel of scarlatina, he thinks is partly dependent on the developement of new skin, but, in a great degree, on the vicarious relationship which becomes established between the function of exhalation and that of the kidney. He alludes particularly to this connexion, as a source of a great number of formidable symptoms in the brain and elsewhere, and remarks that the kidnies, particularly the suprarenal capsules, are often profoundly affected in this disease—a remark which was some time ago made public by Dr. Fischer of Dresden, in Hufeland's Journal.

Dr. Biermann treats the sequel of scarlatina by mild aperients in the first place, and, afterwards, with digitalis, associated with the spiritus mindereri, liquor kali acetici, vinum Antimonii Huxhamii, &c. and occasional doses of calomel, or when the individual is of a torpid or scrofulous habit, this latter article combined with jalap. He also recommends camphor combined with sulph. auratum antimonii, warm bath, and flannel to the abdomen, as a means of restoring the function of the skin. A proper attention to diet is enjoined, and when only debility remains, decoction of bark is given to invigorate the general system.

As we do not propose to analyze all the papers contained in this collection, we shall pass over the second, which comprises some observations on intermittent fever, as it prevailed in 1831 and 1832, considered in relation with the epidemic constitution of the atmosphere which attended the Asiatic cholera. This intermittent fever, the author remarks, was exceedingly prevalent, and that, too, in a region where it had been before uncommon. In 1831, he says, it attacked at least one-third of the entire population, and was characterized by great violence and irregularity of type.

The third paper is entitled Diagnostic and Therapeutical remarks on a form of Angina Parotidea, called by modern writers *Parotitis Erysipelatosa.* This deserves from us a more particular notice, especially as the title would lead us to suspect that our author has in view a disease not generally known. How far our readers may thus consider it, we will leave them to decide, after we have detailed to them the characters of the affection, as portrayed by Dr. Biermann.

He informs us that he has repeatedly witnessed this erysipelous parotitis in an epidemic form, and that it occured in three different years under this character, within the circle of his practice. It always makes its appearance in winter, and seems to be one of the tribe of diseases growing out of a previous rheumatico-catarrhal epidemic constitution of the atmosphere. In all cases, it is preceded by erysipelatous and a tribe of other diseases which owe their origin to an epidemic influence, as whooping cough, varicella, rheumatic and serous inflammations, sciatica, pneumonia, and especially scarlatina. With the last, indeed, it seems to be very closely related, both in its cause and characters. In 1828 it prevailed as an epidemic in the village of Garmsen, while scarlatina

was prevalent in all the surrounding country. Dr. Beirmann thinks that in a nosological arrangement, the disease should be placed intermediate between the exanthemata and rheumatism; and he remarks that he had never known an instance in which it attacked the same individual a second time.

In all cases the disease was ushered in by slight fever or a sense of heat, alternating with cold, and a rheumatic affection of the serous membranes. This last symptom was associated with considerable stiffness and immobility of the whole body. There was also pain about the forehead; and in the epidemic of 1828, these symptoms were associated with evidences of gastric disturbance. As the disease progresses the uneasiness increases; there is oppression about the precordia; yellowish furred tongue, and a tendency to sweat, which is a kind of precursor of what is to follow, and which, after twenty-four or forty-eight hours, is followed by the developement of inflammation of the submaxillary and parotid glands. The swelling is hard, but generally unattended with inflammation of the skin. The part is extremely painful on pressure; deglutition is difficult, on account of the stiffness of the muscles which move the lower jaw: this symptom is considered characteristic of the disease. Many patients complain, in attempting to swallow, of an obtuse or sharp pain in the ear, which Dr. Biermann refers to a high degree of inflammation and tumefaction of the eustachian tube. In some cases the swelling involves the whole cheek; the lower jaw seems to be forced downwards, and the whole countenance is broad and distended, giving to the individual an aspect of stupidity, or the air of a satyr.

Dr. Biermann remarks, that in nearly all the cases observed by him, both sides of the throat were attacked simultaneously. The fever was of the remittent type, exacerbating in the evening, and increasing until midnight to such a degree in some individuals, as to give rise to active delirium. Men were generally more liable to the disease than women, and in 1823 and 1825, even those in advanced life were attacked. Young persons under the age of puberty, at least under the age of thirty, are most obnoxious to the disease. Dr. Biermann remarks, however, that in no case did he find a female over the age of fourteen attacked; and he hence infers that the establishment of the menstrual function may have a tendency to destroy the liability to this affection.

A sweat breaking out on the neck and diffusing itself over the body, about the fifth day, was a favourable symptom, as was likewise a subsidence of the swelling. Generally, about the seventh day, under favourable circumstances, the critical sweats became freer, the urine deposited a copious sediment, and all the symptoms of the disease gradually subsided: under other circumstances, the course of the malady was less favourable; the tumefaction was so considerable as to prevent the return of blood from the head; and, occasionally, the swelling continued a fortnight or more after the subsidence of the fever. Sometimes, indeed, a stony hardness affected the glands, which could not be resolved by leeches, and could only be overcome by active purging with calomel and jalap. This end was also promoted by frictions with camphorated liniment, unguent. Neapolit. and extract. cicuta. In one case the application of poultices was followed by suppuration—not in the substance of the gland, but in the surrounding cellular tissue. Dr. Biermann states that discutient remedies, represented by others to be liable to create metastasis to the testicle, never produced that effect in his hands. Whenever such transfer did take place, the swelling was attended with fever, and the treatment exacted a perseverance in cathartic remedies. In some instances, a metastasis took place to the brain, when the disease assumed the character presented under the same complication in scarlatina. This condition was always attended with an asthenic state of the system, and required exciting remedies, as camphor, musk, arnica, ammonia, and blisters. Metastasis to the testicles was observed in three cases attended with acute pain and a sense of pricking in the gland. In two cases, both testes

were affected; but, in one of them, there had been previous inflammation of the organ from suppressed gonorrhœa, which rendered the affection much more obstinate. The author states that where only one side of the face and neck was affected, and metastasis took place to the testicle, one of these glands alone suffered; whereas, where the disease affected both sides of the face, both testicles became implicated.

The treatment, in a majority of cases, was very simple, consisting of warm clothing, flannel about the throat, camomile fomentations, with camphor to the neck, together with mild diaphoretics, as liquor ammon. acetici with vinum antimonii, infus. flor. sambuci, muriate of ammonia, with small doses of tartarized antimony, so managed as to excite occasional gentle vomiting. These remedies impressed upon the disease a favourable tendency, averted the usual gastric complications, and favoured the developement of a critical discharge by the skin. An emetic at the commencement of the malady, was, in many cases, productive of the most happy effects. In more obstinate cases, where the fever subsided without being attended with the usual abatement of the local affection, it was necesary to resort to calomel and jalap, frictions with volatile camphorated liniment, or mercurial ointment, the use of sulph. aurat. antim. combined with the arcana duplicata, &c. When metastasis takes place to the testes, a blister should be applied in the vicinity of the ears, and the testicles enveloped in warm aromatic fomentations, containing camphor. The emplast. hydrarg. with camphor and extract. hyoscyam. were used with advantage to allay the pain, while the internal use of Dover's powder, combined with camphor, and a weak infusion of arnica, proved very serviceable in this condition.

Our readers will have seen by this time, that this *parotitis erysipelatosa* which Dr. Biermann introduces so formally to our notice, is nothing more nor less than the mumps; and for the grave consideration which the author has been induced to bestow upon it, we cannot discover any better reason, than his desire to make a book, and his willingness to occupy part of it with such common place for want of better matter. As we cannot express a better opinion of the remaining paper, entitled "hitory of epidemic small pox, considered in relation to the reaction of cow-pox," we shall here dismiss Dr. Biermann and his labours. E. G.

––––––

ART. XVIII. *The British Medical Almanack*, 1836, and Supplement. 12mo, pp. 160. London.

This is a useful little pocket and table companion. It contains, amongst other matters, the Calendar, with the usual astronomical information; a Chronological History of Medicine, from the German of Hecker; an Account of the Colleges of Physicians and Surgeons; the Apothecaries' Society with a list of their Licentiates for 1834-5, the Medical Benevolent and Scientific Societies, the Medical Schools, lectures, fees, days, and hours of lecturing; List of the Hospitals, their Physicians and Surgeons, days, hours of attendance, with the fees paid by pupils; Infirmaries, Dispensaries, Museums, Libraries; Army and Navy Medical Departments and Regulations; Provincial Hospitals, Societies and Schools; Schools, Hospitals, &c. at Edinburgh, Glasgow, Aberdeen, St. Andrews, Dublin, &c.; School of Medicine of Paris, &c. &c.

At the commencement of the work, the editor has given a table of what he terms the "Distribution of Physiological Phenomena through the months of the year," from which we extract his account of the deaths, in order to establish a comparison between them and those that occur in Philadelphia and Baltimore throughout the year. The estimates of the mortality are made from the reports of the Boards of Health of Baltimore for 1835, and of Philadelphia for 1834.

The table is formed in the following manner. If 1000 deaths are supposed to occur in the respective places during the year, the table indicates the proportion happening in each month, corrected for any inequality in the number of days. Thus, in Paris, the number of deaths in July are to those in April as 70 to 100; in Montpellier, as 96 to 64; in Philadelphia, as 151 to 61, and in Baltimore, as 80 to 68. The data from which the European estimates have been calculated, may be found in Chabrol's *Recherches Statistiques sur la Ville de Paris*, (1823, 1826;) in the Memoirs of the Stockholm Academy; in Heberden on the Increase and Decrease of certain Diseases; in the *Mémoires de la Société Royale de Médecine*, and in *Quetelet, sur l'Homme.*

DEATHS.									
	Paris.	*London.*	*25 English Country Towns.*	*Sweden.*	*Montpellier.*	*Marseilles.*	*Belgium, (the Country).*	*Baltimore.*	*Philadelphia.*
January,	89	91	92	85	79	89	101	82	81
February,	94	96	96	91	72	79	100	92	70
March,	97	89	96	94	65	83	99	102	82
April,	100	86	99	103	64	83	93	68	61
May,	91	81	90	100	63	74	82	75	63
June,	79	75	77	87	71	72	74	98	65
July,	70	68	71	79	96	93	67	80	151
August,	73	75	69	75	103	91	69	113	93
September,	77	83	73	72	102	85	74	84	85
October,	75	84	74	70	101	82	78	62	116
November,	75	85	79	73	96	87	77	66	61
December,	80	87	85	72	88	82	86	79	70

It is proper to observe, that the deaths, reported in 1834, in Philadelphia, exceeded those of the preceding year by 633; this is mainly ascribed, by Dr. Emerson,[*] to a slight visitation of malignant cholera in September and October, together with an increased mortality from the ordinary forms of bowel complaints, from small-pox, varioloid, and bronchitis. The mortality, by cholera infantum alone, exceeded that of the preceding year by 180, which explains the large ratio of deaths in July.

The supplement contains a Classification of the Animal Kingdom, by Dr. Grant; the mean weight and height of the body at different ages; weight of the human skeleton, brain, and heart; causes of human mortality; tables showing the proportion of sickness at several periods of life; a statistical account of the English Hospitals; Statistics of Cholera; French and English Weights; Tests of the Urine; Auscultation, Percussion, and Antidotes; Treatment of Asphyxia, &c. We extract only the following statistical account of the weight and stature of the human body.

"The subjoined table, showing the average weight and stature of the human body, in Belgium, at birth, and the subsequent periods of life, was collected by weighing and measuring a great number of individuals at each age respectively. It was formed by M. Quetelet. The observations were probably not sufficiently numerous to make the series of numbers so uniform as from theory might be fairly anticipated: on this and many other accounts, it is desirable they should be repeated in England, and indeed among all the races of men.

"The present table shows:—

"1st. That the weight of the male infant, at birth, is nearly seven pounds avoirdupois, while that of the female is not quite six and a half.

"2nd. That the maximum weight (140½ lbs.) of the male is attained at the age of 40; while that of the female (nearly 124 lbs.) is not attained till 50, from which ages they decline afterwards; the male to 127½ lbs., the female to 109 lbs.; nearly a stone.

"3d. That the full grown adult is twenty times as heavy as the new-born infant.

"4th. That the rate of growth varies: in the first year the child triples its weight; afterwards the growth proceeds in geometrical progression, so that if 50 infants in their first year weigh 1000 lbs., they will in the second weigh 1210 lbs.; in the third, 1331 lbs.; in the fourth, 1464 lbs.; the term remaining very constant up to the ages of 11–12 in females, and 12–13 in males, where it must be nearly doubled; afterwards it may be continued, and will be found very nearly correct up to the age of 18 or 19, when the growth proceeds very slowly. The weight of any number of children between two and nine years of age being known, their weight, the amount of matter they can incorporate in twelve months or two years, may be unerringly calculated.

Mean Weight and Stature of the Human Body at Birth, and at every Subsequent Age.

MALES.			FEMALES.		
Ages.	Stature in Feet.	Weight, lbs. Avoirdupois.	Ages.	Stature in Feet.	Weight, lbs. Avoirdupois.
0	1·64	7·06	0	1·61	6·42
1	2·29	20·84	1	2·26	19·39
2	2·60	25·01	2	2·56	23·53
3	2·83	27·50	3	2·79	26·00
4	3·04	31·38	4	3·00	28·67
5	3·24	34·78	5	3·20	31·67
6	3·44	38·80	6	3·38	35·29
7	3·63	42·98	7	3·56	38·68
8	3·81	45·78	8	3·74	42·08
9	4·00	49·95	9	3·92	47·10
10	4·18	54·08	10	4·09	51·87
11	4·36	59·77	11	4·26	56·57
12	4·54	65·77	12	4·44	65·77
13	4·72	75·82	13	4·60	72·65
14	4·90	85·48	14	4·77	80·94
15	5·07	96·40	15	4·92	89·04
16	5·23	109·55	16	5·04	96·09
17	5·36	116·56	17	5·10	104·34
18	5·44	127·59	18	5·13	112·55
20	5.49	132·46	20	5·16	115·30
25	5·51	138·78	25	5.17	117·51
30	5·52	140·38	30	5·18	119·82
40	5·52	140·42	40	5·18	121·81
50	5·49	139·96	50	5·04	123·86
60	5·38	136·07	60	4·97	119·76
70	5·32	131·27	70	4·97	113·60
80	5·29	127.54	80	4·94	108·88
90	5·29	127·54	90	4·94	108·81
	Mean.	103·66		Mean.	93·73·

p. 103.

Such an annual might be published with much advantage, we think, in this country. R. D.

ART. XIX. *Ueber Paralyse der Inspirations-Muskeln.*—Von Dr. LOUIS STROMEYER, Königl. Hofchirurgus und Lehrer der Chirurgie an der Chirurgischen Schule zu Hannover. 8vo. pp. 144. Hanover, 1836.

On Paralysis of the Muscles of Inspiration. By Dr. LOUIS STRÓMEYER, Teacher of Surgery in the Chirurgical School of Hanover, &c.

The author of the present treatise informs us that he was induced to offer it to the medical public in its present form, in consequence of his having observed that the ordinary cases of lateral curvature of the spine were the result of a paralytic condition of the respiratory nerves distributed to the external muscles of inspiration, on one or other side of the body. A fact with which the profession appear not to have been heretofore acquainted, but which cannot fail, if found to be fully established, to have a very important influence upon the treatment of that species of deformity.

The views which he has here advanced, Dr. Stromeyer states to be based upon a close and attentive examination of the inspiratory function and a study of the writings of Charles Bell, in relation to the physiology of the nervous system. Of the correctness of those views, he remarks, any medical man may convince himself by observation.

" In every case of lateral curvature in which the disease is still progressing, it will be found, that, when pressure is made with the open hand upon the abdomen so as to circumscribe the action of the diaphragm and in this manner impel the external respiratory muscles to increased but involuntary action; upon the side to which the body is bent, there exists a deficient activity of the external inspiratory muscles, especially the *serratus magnus.*

" In many cases, particularly those occurring in delicate children, it may be perceived that, even during ordinary quiet respiration, the diaphragm upon the side towards which the trunk is inclined, is drawn inwards instead of outwards and upwards, as it should be, by the normal action of the external muscles of inspiration. This fact has, it is true, been already observed, but it has been attributed to the altered form of the thorax. In proof of this, we are referred to the manner in which respiration is performed when the chest has acquired the same deformity, as is met with in cases of lateral curvature, in consequence of an empyema that has burst externally and healed. But any one can convince himself that in the latter case, the energy of the muscles which dilate the chest is unimpaired, notwithstanding the deformity of the thorax and the long inactivity of the ribs. Hence in cases of lateral curvature the change in the form and direction of the ribs cannot be assumed as the cause of the diminished activity of the external inspiratory muscles. Neither can the latter result from a morbid state of the costal articulations, for these will be found to be completely movable when the patient is directed to make a deep voluntary inspiration.

" The relation," observes Dr. Stromeyer, "which exists between the activity of abdominal and thoracic respiration is subject, unquestionably, to numerous changes. During the normal state of the body, the diaphragm and the external respiratory muscles mutually aid each other in enlarging the cavity of the chest. Where, however, disease affects the abdomen, as inflammation, ascites, &c. the activity of the diaphragm is diminished and the external muscles are called into increased action; while affections of the chest, pleurisy, rheumatism, fracture of the ribs, &c. diminish thoracic respiration and consequently an augmented action of the diaphragm is demanded. But of all the causes which disturb the normal relation between thoracic and abdominal respiration, no one has been less attended to than paralysis of the external inspiratory muscles. When we consider, however, the striking deformity to which such paralysis is capable of giving rise, it deserves, unquestionably, to be carefully studied in all its bearings."

Although in the short treatise before us, Dr. Stromeyer confines himself to the consideration of the agency of paralysis of the muscles of inspiration, in the production of lateral curvature, he does not, however, wish it to be under-

stood that he considers the occurrence of such paralysis to be important merely as the cause of spinal deformity. On the contrary, he believes that it is capable of giving rise to various other morbid phenomena, our acquaintance with which must be obtained from future observations.

" When," he remarks, "the external inspiratory muscles become paralysed, lateral curvature will occur in the earlier periods of life, so long as the osseous system still retains a certain degree of flexibility, but, in the subsequent periods of life, symptoms of a different character may no doubt be expected to result."

How far Dr. Stromeyer is correct in ascribing the ordinary cases of lateral curvature of the spine to *paralysis* of the exterior respiratory muscles, will admit of considerable dispute. We do not mean to call into question the fact of this species of deformity being in many, perhaps in all instances produced by a deficient action of the muscles referred to, but we do doubt whether such deficient action is usually the result of actual paralysis. It is certain that Dr. Stromeyer has not advanced a single even plausible argument in favour of the position which he has assumed.

In the commencement of the present treatise we are presented with the history of six cases of lateral curvature; one of which the author ascribes to paralysis of the inspiratory muscles of the right ride; four to paralysis of the serratus magnus, and one to paralysis of all the external inspiratory muscles. The muscles indicated were no doubt in these cases deficient in vigour and activity, and upon this change from their normal condition the curvature of the spine may have been produced; but after a careful perusal of the cases we are by no means convinced that in either of them paralysis of those muscles, in the proper acceptation of the term, existed.

In the chapter devoted to a consideration " of the causes of Scoliosis" or lateral spinal curvature, Dr. Stromeyer remarks, that the ordinary species of this deformity has been, heretofore, erroneously supposed to depend upon a morbid condition of the whole of the muscles upon one side of the neck and trunk, under the impression that the constitutional disturbance with which the affection is usually connected must necessarily affect the muscular system generally. " No attention has been paid to study the functions of the muscles individually, and in this manner to determine with accuracy the manner and degree in which each concurs to the maintainance of the erect position of the body."

The pathology of lateral curvature, has, according to Dr. S., become in consequence, involved in endless difficulties and obscured by forced explanations. But when it is studied, he adds, in reference to the individual muscles, the diminished energy of which occasions the primary disturbance of the equilibrium of the body, it is at once placed in a new and very interesting light. We are enabled in this manner to distinguish clearly the primary from the secondary curvatures, and the whole ætiology of these affections is divested of those difficulties and that obscurity with which it has heretofore been supposed to be surrounded.

According to our author, in order to determine the particular muscles, the defective activity of which has a tendency more especially to destroy the equilibrium of the body, it will be adviseable, in the first place, to separate all those, which, from the peculiarity of their origin and insertion, are incapable of concurring, when paralysed, to the production of lateral curvature. Thus, he remarks, the *latissimus dorsi*, being spread over the greater part of the back is not capable, when affected with paralysis on one side, of producing a curvature of the spine, the arc of which includes only a small number of vertebræ. Its action is such, that when its energy is impaired on either side of the body, it must give rise to a single curving of the whole of the vertebræ of the back and loins. Again, the impaired action of the *longissimus dorsi* and *sacro lumbalis*

39*

is not calculated to produce proper lateral curvature of the body; the function of these muscles being rather to antagonize the flexors of the trunk than to assist in maintaining its lateral equilibrium. Their paralysis would therefore give rise to an anterior curvature when it occurs on both sides of the body, and to an anterio-lateral curvature when confined to one side only—a deformity which has no similarity to ordinary scoliosis.

The numerous small muscles of the spine itself—the *spinales* and *semi-spinales dorsi*, the *multifidi spinæ*, *levatores costarum*, *inter-spinales* and *inter-trans-versarii* have likewise, according to Dr. S., no influence whatever in the production of true lateral curvature. Individually, he conceives, they are too small to cause the extent of deformity which is usually observed in such cases. They must, besides, be separately paralysed on one or other side of the body, to produce a curvature of the spinal column; now that such a simultaneous but at the same time partial paralysis of these muscles, supplied as they are with very different nerves, should take place, our author believes we have no reasonable grounds for supposing. These muscles may nevertheless, he admits, be concerned in the production of serpentine curvatures, the different arcs of which include only a very few vertebræ.

That the abdominal muscles have no actual influence in causing lateral curvature is proved, Dr. S. remarks, by the fact, that even in the highest grades of that deformity, their symmetrical action is found to be in no degree impaired.

After rejecting as inefficient in the production of lateral spinal curvature, the foregoing muscles of the trunk, those which remain will be found with the exception of a few, in relation to the agency of which in the disturbance of the equilibrium of the body, Dr. S. is still undecided, to be almost exclusively the muscles concerned in respiration. These our author supposes to be, from their intimate connexion with the sympathetic system of nerves and their peculiar functions, more liable to disturbance of their regular actions from constitutional causes, than the foregoing.

Dr. Stromeyer proceeds next to consider the individual functions of the remaining muscles, and to examine how far, when paralysed, they concur in the production of lateral curvature. His remarks upon these points occupy too large a space to permit of our translating them entire, on the present occasion, while they do not readily admit of condensation.

Passing over the chapters on the functions of the inspiratory muscles; on the upright posture and lateral equilibrium of the upper portion of the body; on two important symptoms of coxalgiæ; on contractions of the muscles; on the peculiar expression of the eyes in cases of scoliosis; on the influence of posture in the production of curvature of the spine; on lateral curvatures produced by other causes than paralysis of the respiratory muscles; on the relation between scoliosis and rhachitis, we come to the last chapter, which treats of the practical inductions from the views which the author has advanced in relation to the true cause of ordinary lateral spinal curvatures.

"The entire therapeutics in cases of lateral curvature, " he remarks," is comprised, according to my views, in restoring, by means more or less simple, the activity of the organic functions of the system, and at the same time in placing the body in such postures as shall be adapted, by increasing the organic energy of the respiratory muscles, to restore to it its proper form, avoiding, however, all such constrained and continued positions as are calculated to interfere with the main object, the restoration, namely, of the vigour of the entire constitution—for there are few cases in which a local affection exists independent of the general constitutional malady."

To fulfil the indications here laid down, the author depends, mainly, upon gymnastic exercises and other similar means, which, while they act beneficially upon the nutrition and other organic functions of the system generally, may be so regulated as to call into action and thus increase the energy of the respi-

ratory muscles in particular. Regulated exercise is so benefical, he remarks, in the removal of lateral curvature, that in general, it renders unnecessary all internal remedies. There is much good sense and sound practical observations in all that Dr. S. has laid down in reference to the prevention and cure of spinal curvature, but the very correctness of his views upon these subjects may be adduced in disproof of his opinion that the want of equilibrium in the action of the external inspiratory muscles on the two sides of the body is dependent upon actual paralysis of their proper nerves. But while we cannot subscribe to the correctness of Dr. Stromeyer's leading thesis, we have nevertheless derived considerable instruction from the present treatise, and beg leave to recommend it to our readers as a valuable contribution to scientific orthopædia.

D. F. C.

Art. XX. *Lectures on the Nervous System and its Diseases.*—By Marshall Hall, M. D., F. R. S., &c. 8vo. pp. 171. London, 1836.

This is an extremely interesting little work. Although professedly the mere notes of lectures delivered by Dr. Hall in the summer of 1835, and now published as the outline of a more complete treatise on the nervous system and its diseases, to the preparation and completion of which he proposes to devote his future studies, it nevertheless comprises a series of useful hints upon the proper arrangement and best method of investigating a very important, but at the same time extensive and intricate class of diseases. " When the whole outline is filled up," with the author, we anticipate " that it will present a work of great *practical* as well as scientific interest," and we are happy to learn that there is a probability of the task being accomplished " before many years have passed away."

In their present form of mere outline. the lectures constitute a useful manual for the student of medicine, and one that may be even consulted by the practitioner with perhaps equal if not more profit than many treatises upon the same subject, of far greater bulk and pretensions.

They commence with a brief view of the anatomy, physiology and pathology of the nervous system, in which the plan and objects of the proposed investigation are very clearly and satisfactorily though succinctly set forth. The author next treats in succession, and in the same concise manner of the congenital states of the nervous system, of the cerebral and spinal diseases, first of infancy and then of adult age. To these follow outlines of the diseases of the cerebral nerves, diseases of the cerebellum, diseases of the spinal marrow, diseases of the spinal nerves, and finally, diseases of the ganglionic nerves.

The arrangement of the nervous affections adopted by the author, is based, it will be perceived, strictly upon the anatomy and physiology of the nervous system; and although we may not be prepared to adopt in every particular, and to their full extent, the physiological and pathological views of Dr. Hall, we nevertheless cannot but anticipate the most favourable results from a more complete investigation of the various points briefly sketched in the lectures before us, conducted upon the plan there laid down and in the same spirit of candour which the author has manifested in drawing up the present outlines.

" I have endeavoured," says Dr. Hall, " to pursue this enquiry through the medium of anatomy, physiology, and pathology; but my aim has also continually been to improve the diagnosis and practice. I think that the science and art of medicine are by no means incompatible acquirements, and that the boast of being a mere practitioner should cease to be a cloak for ignorance and indolence. To pretend to understand the diseases of the nervous system without an intimate knowledge of its anatomy, physiology, and pathology, is the height of folly or

presumption. The symptoms of these diseases can be justly interpreted by the anatomist, the physiologist, alone; and an accurate knowledge of the symptoms is absolutely necessary to practice: it is the principal source of the diagnosis, and our constant guide in the administration of remedies."

To the two divisions of the nervous system ordinarily admitted, the cerebro-spinal, and the ganglionic or sympathetic, Dr. H. believes that—

"A third must be added, before our views of that system can be considered as at all complete;—it is one which he claims the merit of first pointing out in all its fulness. Suppose the cerebrum and cerebellum, the *centre* of the first sub-division of the nervous system, and the ganglionic, or the second sub-division of this system, removed, *this remains.* It consists of the *true* spinal marrow, distinguished from the sentient and moter nerves which run along its course, as an *axis of exciter* and *motor* nerves. It is the seat of a peculiar class of pathological affections."

"In the former are included *all* the functions which relate to the immediate acts of ingestion and *egestion*, to the latter *all* spasmodic diseases."

Dr. Hall's division of the nervous system, therefore, is, into 1st. The cerebral, or the sentient and voluntary; 2nd. the true spinal, or the excito-motory; and 3d. the ganglionic, or the nutrient, the secretory, &c.

He conceives, also, there is good reason for viewing the fifth and the posterior spinal nerves as constituting an external ganglionic system, for the nutrition, &c. of the external organs; so that he would propose to sub-divide the ganglionic sub-division of the nervous system into—I. The *internal*, comprising 1. the sympathetic; 2. the pneumo-gastric. II. The *external*, comprising 1. the fifth; 2. the posterior spinal.

As the peculiarities of Dr. Hall's views of the pathology of nervous diseases is pretty much confined to his particular opinions in regard to the excito-motory portion of the nervous system, we shall confine our present notice to such portions of the lectures as treat of the latter.

"A peculiar set of nerves, he remarks, constitute, with the true spinal marrow as their *axis*, the second sub-division of the nervous system. As those of the former sub-division were distingushed into sentient and voluntary, these may be distinguished into the *excitor* and *motory*. The first, or the exciter nerves, pursue their course principally from *internal* surfaces, characterized by peculiar excitabilities, *to* the true medulla oblongata and spinalis; the second, or the motor nerves, pursue a reflex course *from* that medulla to muscles having peculiar *actions* concerned principally in ingestion and egestion. The motions connected with the former, or cerebral sub-division, are sometimes, nay, frequently *spontaneous;* these connected with the true spinal are, I believe, *always excited.*" Even the motions of respiration, so far as they belong to the latter system, Dr. Hall conceives to be excited motions. He thinks that Legallois, Flourens and Charles Bell are " equally in error, when they considered the medulla oblongata as the *source*, the *primum mobile*, of the respiratory motions."

"This," he adds, "is the *channel* through which the excitors act, and the organ which *combines* the different movements which constitute the acts of respiration; but the true *source* of these movements are certain excitor nerves—the excitors of respiration—and principally branches of the pneumo-gastric, but also of the fifth and spinal nerves."

Hence he conceives, in opposition to Dr. Phillip and Mr. Mayo, that respiration is a mixed function, as *all* the acts of the excito-motory system may be; and although generally belonging to the excito-motory system, yet capable of being effected through the medium of volition.

The distribution of the excito-motory nerves, according to Dr. H., takes place principally about the larynx and pharynx, in connexion with the medulla oblongata; and about the sphincters, in connexion with the lower part of the spinal marrow; and hence they especially guard the *orifices* and *exits* of the human frame. Other parts of the system govern the acts of *ingestion*,—deglutition, and respiration, and the acts of *excretion*, of the fæces, urine and semen.

A third portion of the system gives general tone to the muscular egestion, and consequently to the limbs.

It is impossible in the present notice to give any thing more than a bare outline of the author's views—to enter more into particulars would render it necessary for us to copy the greater part of the work before us, which is itself extremely condensed, dealing more in generals and in specialities.

"The symptoms of apoplexy and hydrocephalus," we are told " are only to be understood by a reference to the distinct functions of the distinct sub-divisions of the nervous system. In the former there is perfect coma, blindness, deafness, perhaps insensibility to impressions which would, in other circumstances, be productive of pain; yet the patient breathes, and the sphincters still do their office. In hydrocephalus, or the hydrocephaloid disease, there may be a dilated pupil, with total blindness; yet although the eye remains unclosed whilst the fingers or any other object approaches the cornea, a touch of the tip of an eye-lash immediately induces the closure of the eye-lids! At length, with augumented diseases this phenomenon ceases in its turn. The excitor nerve of the eye-lash loses its excitability, or the motor of the orbicularis its motor power, the eye-lids are unmoved on touching the eye-lash, and are permanently but half closed. The respiratory muscles and the sphincters fail in their several offices.

"Filaments of the fifth pair of nerves are the excitors distributed upon the border of the eye-lid and surface of the eye-ball, upon the nostrils, probably upon the fauces, certainly upon the face,—and are the *first* agents in inducing closure of the eye-lid, sneezing, vomiting, and sobbing, when the eye-lash is touched, the nostrils stimulated, the fauces irritated, or cold water is dashed upon the face. Other motor nerves convey the reflex influence from the medulla oblongata to the orbicularis, and the various respiratory muscles, whose actions are combined to the acts of sneezing, vomiting, and sobbing.

"Filaments of the pneumo-gastric are the excitors, when carbonic acid gas, or a drop of water comes in contact with the larynx,—when the dust of ipecacuanha is inhaled into the bronchia with the effect of inducing asthma,—in deglutition, in ordinary respiration,—and in the act of vomiting produced by antimony in the stomach and calculi in the gall bladder or ureter.

"There are several interesting and peculiar facts connected with the excito-motory system. If the fifth nerve in the fauces be irritated, vomiting is induced, if, on the contrary, the eighth in the pharynx be excited, the act of swallowing follows. It has happened, that when a patient has wished to excite vomiting by tickling the *fauces* with a feather, he has, by passing it into the *pharynx*, induced such an action of the muscles of deglutition, as has drawn it into the œsophagus. A similar event has occurred in regard to the female catheter: certain nerves being excited on introducing this instrument, an action of the muscles has been induced, which has drawn the catheter out of the fingers of the surgeon into the bladder."

To the excito-motory division of the nervous system Dr. Hall refers the whole of the spasmodic and convulsive diseases. One form of these diseases have their origin, he maintains, in the spinal marrow itself, the axis or centre of the system—these he denominates *centric;* and another form of the spasmodic and convulsive affections, he believes, to have their source in the excitor nerves, consequently at a distance from that centre,—these he demominates *excentric;* a third form occurs, like the spasmodic tic of the seventh pair, in the course of the motor nerve. The prognosis of these diseases, according to our author, depends entirely upon this distinction; thus the centric forms are, for the most part, incurable; the eccentric on the contrary, with some few exceptions, as generally admit of cure.

In all, or almost all the spasmodic diseases, we are told, the parts most immediately concerned in ingestion and egestion,—the orifices and exits of the body,—are those principally affected. "The *larynx is closed* in the convulsions of children, in epilepsy, in puerperal convulsions; it is spasmodically affected in tetanus and hydrophobia; it is partially affected in the croup-like convulsions, in hysteria, in which there is frequently loss of voice, &c. The *pharynx* is

affected in some of these diseases. The *respiratory* muscles are so in all. In epilepsy we observe affections of the *sphincters*, and even of the ejaculators."

"No disease," Dr. H. remarks, " can illustrate the pathology of the excito-motory system better than epilepsy. It is sometimes centric, and incurable; frequently excentric, arising from gastric or intestinal irritations, and curable. It involves every part, and every function, of which I have spoken under the head of physiology. The fourth and sixth nerves are affected, and the eyes move convulsively,—the tongue is protruded, and the teeth are forcibly closed upon it, the mouth is variously moved, with the extrusion of bloody foam,—the larynx is closed, and there are forcible convulsive efforts of the expiratory muscles; and as I have just stated, the sphincters are sometimes relaxed, and the ejaculators occasionally expel the semen."

"The condition of the larynx and of the respiratory motions affords an important diagnosis between epilepsy and hysteria. In the former the larynx is usually closed with forcible expiratory efforts,—in the latter it is open, with heavings, sighing, breathing."

Dr. Hall notices briefly the connexion of the uterus with the excito-motory system. Conception is apt to produce vomiting—convulsions frequently supervene towards the termination of pregnancy, and during, and after pregnancy. The very act of parturition, inscrutable as it is, seems, with abortion, to be one of the excito-motory system. He likewise remarks the singular influence of the passions over the above and all the functions of the excito-motory system. " Sickness, panting, convulsions, relaxation of the sphincters, these, and a thousand other affections of this system, are induced through the mysterious influence of disgust, fear, &c. Infantile convulsions and epilepsy are renewed by vexation, &c."

Vomiting, it is remarked, may be excited by disease within the cranium, by irritation of the fifth in the fauces,—of the pneumo-gastric in the stomach, the gall duct, the urethra, of spinal nerves of the cervex uteri. This familiar phenomenon combines the excitor nerves and motor nerves of respiration into one system.

" On the other hand, dentition produced strangury and tenesmus—symptoms of calculus,—in the little boy of a friend of mine,—symptoms which ceased on freely lancing the gums. In one case, extreme spasmodic stricture of the sphincter ani was produced by the unexpected presence of a calculus in the urethra. There is no more common event than retention of urine from passing a ligature round a hæmorrhoidal tumour. In *all* these various cases, an excitor nerve is irritated—the irritation is carried to the medulla oblongata or spinalis, and reflected upon the muscle, or system of muscles, excited to spasmodic action."

Spasmodic actions are induced by disease of the meninges and of the brain. Dr. H. believes, that this is to be explained upon the principles of irritation and counter-pressure. The first *may* act through the medium of the nerves distributed to the membranes, as the recurrent of the fifth of Arnold. The second occurs when convulsions are produced by pressure upon the tumor of spina bifida; by pressure upon the tumid fontanel in cases of hydrocephalus, and by hypertrophy of the brain when the cranium does not enlarge with the encephalon.

The diseases referred by Dr. H. to the excito-motory system are asphyxia of new born infants, epilepsy, paralysis agitans, mercurial tremor, puerperal convulsions, tetanus, hydrophobia, hysteria, chorea, stammering, spasmodic asthma, convulsions of children, vomiting, tenesmus, strangury, abortion, spasmodic strabismus, spasmodic tic, spasmodic torticollis, spasm of the respiratory muscles. Each of these diseases are commented on more or less briefly, and a concise view is presented of their therapeutical management. As a sample of the author's mode of treating of diseases in the outlines before us, we copy his remarks upon the asphyxia of new born infants.

" The infant is said to be *still-born.* You wait for the establishment of respiration, and this event does not take place. There is a general alarm, you will

now, for the first time, see the value and importance, in a *practical* point of view, of the principles of the physiology and pathology of the nervous system, which I have been teaching you. I have told you that *respiration* is an *excited* function; that it belongs to the excito-motory subdivision. In one word then, all our efforts must be instantly made to *excite* respiration. Now what are the *channels* through which this act may be excited?—what are the excitors of respiration?—the *fifth*, the *pneumo-gastric* and the *spinal* nerves!

"The *fifth* pair of nerves must be excited by *forcibly* dashing cold water on the face,—by stimulating the nostrils by ammonia, snuff, pepper, or the point of a needle. The *spinal* nerves must be excited by *forcibly* dashing cold water on the thorax, the thighs,—by tickling or stimulating the sides, the soles of the feet, the verge of the anus.

"What the pneumo-gastric is, as the excitor nerve of respiration under ordinary circumstances, the fifth and the spinal nerves, are, in cases of asphyxia or suspended respiration. The means recommended for exciting respiration through these excitors, frequently induce a sudden act of inspiration which proves the first of the series so essential to animal life.

" But if these attempts to *excite* respiration through the fifth and spinal nerves, fail, we must *imitate* this function by artificially distending the lungs, in the hope that, eventually, it may be excited through its wanted channel, the *pneumo-gastric*. To effect this, the practitioner's lips are to be applied to those of the infant, interposing a fold of linen, and he is to propel the air from his own chest, slowly and gradually into that of the infant, closing its nostrils, and gently pressing the trachea upon the œsophagus. The chest is then to be pressed, to induce a full expiration, and allowed to expand so as, if possible, to effect a degree of inspiration. But it is important in doing this, that the practitioner himself should previously make *several deep* and *rapid* respirations, and finally a full inspiration. In this manner, the air expelled from his lungs into those of the little patient, will contain more oxygen and less carbonic acid, and consequently be more capable of exciting the dying embers of life.

" I base this suggestion on an interesting communication by Dr. Faraday, in the London and Edinburgh Philosophical Magazine, vol. iii. p. 241, for October, 1833. It is ascertained that respiration may be suspended longer, as in diving, or in experiments, after such repeated forced respirations, than in ordinary circumstances, from the greater purity of the air in the lungs.

" If all these plans should be tried in vain, I would strongly advise galvanic or electric shocks to be passed from the side of the neck to the pit of the stomach, or in the course of any of the *motor respiratory* nerves, and their appropriate muscles. No time should be lost in sending for a proper apparatus; but should the lapse of an hour, or even more, take place before it *can* be obtained, still it should be sent for and tried.

"When respiration is established, the *face* must *still* be freely exposed to the air, whilst the temperature of the limbs and body is carefully sustained. In the midst of these efforts, it should, in the next place, be the office of two other individuals to maintain or restore the *temperature* of the little infant, by gently, but constantly, pressing and rubbing its limbs between their warm hands, passing them upwards in the direction of the venous circulation. An enema of gruel, at 98° or 100°, or *higher*, with a little brandy, should be administered.

" As soon as possible, a little warm liquid, as barley water, at blood heat, should be given by means of the proper bottle, furnished with leather or soft parchment. A teaspoon must not be used, for fear of choaking. If the infant draws the liquid through its own lips, by its own efforts, there is no danger."

Our only aim in the present notice of Dr. Hall's lectures, has been to acquaint our readers with his pathology of a very important, and heretofore but little understood class of nervous affections. The whole work, however, outline as it is, we can very honestly recommend to the notice of the profession in this country, and we feel persuaded that an American edition of it would be very favourably received.   D. F. C.

ART. XXI. *The British and Foreign Medical Review, or Quarterly Journal of Practical Medicine and Surgery.*—Edited by JOHN FORBES, M. D., F. R. S., and JOHN CONOLLY, M. D., editors of the Cyclopedia of Practical Medicine, Nos. 1 and 2. January and April, 1836.

This is a new English Journal, the first number of which was published in January last. It comprises the following departments, viz.—1st. Analytical and Critical Reviews; 2. Bibliographical Notices; 3. Selections from Foreign Journals; 4. Medical Intelligence. The reviews in the two numbers before us have for the most part been evidently prepared by writers of some experience, who are acquainted with the subjects discussed, and are altogether of a higher order than those of any other British Medical Periodical, with the exception of the Edinburgh Medical and Surgical Journal. The third and fourth departments contain some interesting selections from foreign journals, and various articles of medical intelligence. Particular attention is bestowed in this work to the medical literature of the continent of Europe, and promises are held out that we shall be made acquainted through it with the condition of our science in Russia, Poland, Sweden, Holland, Denmark, Spain and Portugal.

The British and Foreign Medical Review, if continued as it has been commenced, cannot fail to attain a high literary character. Those who interest themselves in the condition of foreign medical institutions and medical literature will find in this journal a great mass of information on these subjects. Fault will probably be found with it in this country, as we are informed has been in England, that the collection of what is novel and curious has been made too prominent, and what is practically useful too secondary an object.

It is announced that the work will be published simultaneously in England and in this country. The first number did not, however, reach Philadelphia until the last day of April. Greater attention will in future, it is hoped, be paid to its prompt transmission.

———

ART. XXII. *The Southern Medical and Surgical Journal.*—Edited by MILTON ANTONY, M. D. Professor of Obstetrics in the Medical College of Georgia, and JOSEPH A. EVE, M. D., Professor of Therapeutics and Materia Medica in the Medical College of Georgia.

This is another new candidate for public favour. It is to be published monthly at Augusta, Georgia, and the first number was issued in June last. It is divided into three departments, viz.—1. Original Communications, 2. Reviews and Selections, and 3. Periscope. Each number is to contain 64 pages, and seven numbers will comprise about as much matter as one of this journal. The price is five dollars per annum.

In the June number, the only one that has reached us, there are two or three interesting original articles, which we shall notice particularly hereafter. The reviews are meagre and manifestly from inexperienced hands; the selections are for the most part interesting.

QUARTERLY PERISCOPE.

FOREIGN INTELLIGENCE.

ANATOMY.

1. *On the intimate structure of the Intestinal Glands.*—By Dr. Boehm. The glands of Peyer (glandulæ agminatæ, plexus intestinales) appear to have the same structure, through a various form, in all the mammalia. Collected in groups of various sizes, they individually consist of hollow corpuscules with a simple cavity, filled with a semi-opaque fluid when the glands are in a healthy state, but found empty in subjects dying of fever, or other diseases affecting the whole system. The parietes of this cavity are composed of two membranous laminæ, a superficial one resulting from the mucous, and a peculiar one beneath, occupying the submucous membrane, and lining the whole cell or vesicle. The cavity so constituted is not furnished with an excretory duct, for which, however, a morbid black speck or incipient ulceration has frequently been mistaken. Each gland is surrounded by a circle of minute tubes, (corona tubulorum,) opening into the intestine, but closed at the other extremity. In birds, on the contrary, a duct is distinctly visible. The fluid within the above-mentioned cavities differs from mucus by its ready solubility in any quantity of water. It contains innumerable whitish globules, in some respects similar to those of blood. The author believes, with MM. Clarus and Louis, that ulceration of the glands of Peyer originates in inflammatory exudation, occurring in the membrane beneath.—*British and Foreign Q. Rev. Jan.* 1836, *from Hecker's Annalen,* 1835.

2. *Cold Injection for the Blood Vessels.*—Professor Retzius of Stockholm, has employed for several years the following composition as a cold injection for the blood vessels. Minium 12 parts, linseed oil boiled 7 parts, common turpentine 3 parts. After having well triturated and dried the minium in a warm stone mortar, the linseed oil and turpentine are added. The turpentine is mixed with the oil of linseed whilst warm. Twenty-four hours after being injected, the mass becomes hard and is not again softened by heat.—*Eyr. et Med. Tidsskrift,* Christiana, 1834.

PHYSIOLOGY.

3. *Professor Tiedemann's experiments 'on Pulmonary exhalation.*—In order to ascertain what substances pass in the form of vapour from the blood in the lungs, Professor Tiedemann instituted a series of experiments on dogs. Having exposed the femoral vein, and introduced a small injecting pipe with a stopcock, he

was enabled to ascertain how long the substance was before it passed off by the lungs, and how long it continued to do so.

He injected one drachm of the expressed juice of pounded garlic into a vein in the thigh of a middle-sized dog: in the space of three seconds after the injection the breath smelt powerfully of garlic, and the respiration was quicker and deeper; the smell of garlic was quite distinct in the expired air for two hours after. The experiments appeared to have no injurious effects whatever on the animal.

He injected an ounce of spirit of wine into a vein in the thigh of a middle-sized dog. The injection was scarcely over before the delicate, almost etherial, vapour of the alcohol was perfectly distinct.* Respiration very quick, pulse extremely rapid, pupils dilated: the animal lay comatose, and respiration became unequal, ceased, and death followed in ten minutes: in examining the body after death, the alcoholic smell was distinct in the vapour arising from the peritoneal, pleural, and pericardiac cavities; the heart contracted feebly from mechanical irritation; the blood on the right side was dark red, somewhat coagulated, and smelt (as did also that of the jugulars) of alcohol. The blood of the left side was of a bright red, and smelt much stronger of alcohol. On opening the head and vertebral canal, the smell of alcohol was perceptible as in cases of death from intoxication. The cerebral vessels were much injected. Death was produced by destroying the action of the brain and nervous system.

Professor Tiedemann injected half an ounce of camphorated spirit of wine, at twenty minutes past eleven, into a vein in the thigh of a large stout butcher's dog, which had been fed on bread at eight the same morning. In sixteen seconds after the operation, the smell of camphor was perceptible in the expired air, and rapidly increased; respiration much hurried, breathing deep, vehement, and irregular: in the course of a minute, the animal howled, and this was followed by most violent convulsions, viz. opisthotonos, pupils greatly dilated. In order to quiet these efforts of the camphor, he injected into the vein half an ounce of cold vinegar, a well-known remedy in poisoning by camphor: the convulsions ceased, and the animal became quiet; the respiration was more regular, although still quick; the pupils continued dilated. Having withdrawn the tube, and tied the vein, the dog was removed from the table. At first it staggered a good deal, and then remained standing still. At twelve o'clock it ate some bread and milk greedily; the pupils gradually contracted; the smell of the camphor continued for some time, growing weaker, and the next day the animal was well and lively.

At thirty-two minutes past eleven, five grains of the best musk, finely diffused in two drachms of water, were injected into a vein in the thigh of a small terrier bitch. The animal became restless instantly after the injection; it breathed quicker and deeper, and cried somewhat. The smell of musk was distinctly perceptible in the expired air. In the course of a few minutes it became comatose, and fell into a species of catalepsy. When removed from the operating table, it stood motionless on its feet, hanging the head down and resting it on the nose.† When the feet were moved, it remained in the same posture in which it was put. The respiration became again regular; the action of the heart was not quickened; it beat seventy in the minute, as before the injection; pupils dilated. In the course of ten minutes the pupils contracted. The animal moved itself slowly, and evacuated solid fæces. At twelve o'clock it lay down, and fell into a deep sopor, lying on its side with outstretched feet and the eyes half open; the pupils were contracted, the muscles stiff; occasionally, slight convulsive motions appeared; the hind feet were spasmodically contracted. At one o'clock thin mu-

* The writer of this article was stationed at the animal's nose, in order to detect the first traces of alcoholic vapour. He watched the piston of the syringe, as it gradually descended along the cylinder in Professor Tiedemann's hand: it had barely ceased to move before he perceived the peculiar smell, as described above.

† The effects of the musk in this experiment reminded us strongly of some experiments performed on animals, some years ago, by Flourens, to determine the precise functions of the different portions of the nervous system. He removed the cerebrum of an animal: it immediately ceased to exhibit voluntary motions, whether of mammalia or aves. It remained standing, as if in a deep sleep; if pushed, it walked; if he threw the bird into the air, it flew. The animals no longer moved from their own impulse. They retained their power undiminished, but the inward power of determining to act failed entirely.—Rev.

cous fæces flowed from the rectum; the expired air no longer smelt of musk; the animal heat was not perceptibly increased. When the animal was raised and placed upon its feet, it sank down immediately, and could not be roused from its state of sopor. Every now and then slight tetanic actions were observable. At two o'clock it again passed fluid fæces, with a good deal of black blood inter-mixed; the convulsions became less frequent; the sopor and the discharge of blood from the anus continued; respiration became irregular; the pulse ceased, and it died during the night.

On examining the body the next morning, the muscles were rigid; the veins of the abdomen were distended with dark-coloured blood; the whole intestinal canal was very red; the mucous membrane of the stomach had a reddish tinge; that of the whole intestinal canal was of a dark red; the canal also contained a quan-tity of effused dark blood in its lower part, mixed with blood, the vessels of the liver and spleen were gorged with dark blood; the bile in the gall bladder was unchanged; the cavities of the heart and large vessels contained dark blood; there was no peculiar change in the lungs, nor in the brain and spinal marrow, except that the veins of the latter contained a large quantity of blood. It was remark-able, that in no part of the body was the slightest smell of musk perceptible; it must either have been entirely excreted, or have undergone some change and decomposition.

Professor Tiedemann observes, that the death of the animal appeared owing to a change produced by the musk in the blood, which had rendered it incapable of maintaining the activity of the nervous system. Nature here had evidently made a powerful attempt to discharge this substance from the blood, partly by the pulmonary vapour, and partly by the mucous membrane of the intestinal canal.*

Two drachms of sulphuret of carbon were injected into a vein in the thigh of a large dog. The injection was scarcely over before it was smelt most powerfully in the expired air; the respiration was very hurried, became soon irregular, in-termitting, and ceased. The animal died suddenly, after a short but violent ex-tension of the limbs. The diaphragm no longer contracted on stimulating the phrenic nerves; every cavity of the heart was strongly distended with blood; irritation produced very faint contraction. The blood of both sides of the heart was of a dark red, with no smell of the sulphuret of carbon; it was converted into a homogeneous mass without coagulating. The lungs were covered with large dark red spots, and appeared hard, as if hepatized.

Five grains of phosphorus, dissolved in two drachms of oil, were injected into a vein in the thigh of a hound at ten A. M.: the instant the injection was over, the animal exhaled clouds of a dense white phosphorous vapour from its nostrils and mouth:† it howled, the respiration became hurried, and the heart more active. In half an hour afterward, the expired air still smelt of phosphorus; the respira-tion became very labouring; the circulation slower, irregular, and the dog died at half-past one. On examining the body, the trachea and its ramifications were found filled with white foam, mixed with streaks of blood; the lungs were of a dark-red colour, covered with red spots, inflamed, and very dense. The cavities on both sides of the heart were filled with dark coagulated blood, which smelt of phosphorus.

"I have repeated this experiment," (says Professor Tiedemann,) "several times. If it be performed in a dark place, the expired vapour becomes luminous, and the animal appears as if it were breathing fire. If we inject a considerable quantity of phosphorated oil, death follows very rapidly, from the inflammation of the lungs, and consequent obstruction to the breathing."

From these experiments and observations, it appears evident that the volatile substances introduced into the circulating system of animals are thrown off with the greatest rapidity from the minute ramifications of the pulmonary artery in the cells of the lungs, and thence removed in the expired air, in which they be-come easily perceptible to the olfactory organs.

---

* The appearance of the mucous membrane of the whole intestinal canal was singu-lar: it was in the highest state of dark-red congestion, and had almost a pulpy appear-ance.—Rev.

† The animal's head was for a moment almost concealed by the dense fumes of phos-phorous acid, which streamed profusely from his nostrils and jaws.—Rev.

The function of the lungs does not only consist in effecting an important and absolutely necessary exchange between the component parts of the inspired air and those of the dark red venous blood mixed with chyle and lymph, during which the oxygen of the expired air combines with the blood, and the carbonic acid is thrown off, producing the bright red arterial blood; but, besides this, the lungs appear to act as a genuine excretory organ for the venous blood.   Volatile unassimilable substances, which have been conveyed into the blood from the food, which cannot serve in forming arterial blood, and are capable of evaporation, are thrown off in the cells and bronchi of the lungs, and removed with the expired air.   Thus, the lungs assist in preparing the arterial blood from the alimentary matters which have been digested and carried into the circulating system, and impart to them such combinations and properties as fit them for the office of reproduction, and render the blood conveyed to every organ capable of repairing those changes in the structure and organs of the animal body which have taken place in the performance of their various functions.

In this manner the lungs play a most important part in the process of assimilation and nutrition, not only as the peculiar organ of respiration, but also as a means for the excretion of those volatile substances, and thus enabling the animal functions to preserve their peculiar constitution and qualities, so necessary for the continuance of life.   Hence we can understand how variable the pulmonary vapour must be according to the nature of the food, drink, and medicines, which have been taken, and also according to the condition of the vital actions which are accompanied by constant changes in the structure of the different organs.   Among other circumstances under which the expired air is remarkably changed, is a state of great hunger.   Many physiologists, who have made experiments on animals to ascertain the effects of starvation, have remarked the highly offensive, almost putrid, smell of the breath under these circumstances. It is a well known fact, that the breath of a person who has been some hours without food smells disagreeably.   The smell of the pulmonary vapour varies at different ages: in children and youth, the breath has no peculiar smell; but, in advanced age, it has frequently an offensive odour.   In females, during the catamenial periods, it has a disagreeable sweetish smell; during pregnancy, also, it has a different smell from that which it has in the unimpregnated state; and, after labour, it has a peculiar milky smell.   The smell of the pulmonary vapour varies remarkably in disease: in the advanced stages of phthisis, it is very disagreable, even putrid and ammoniacal; in malignant putrid fevers, where the blood has been much diseased, the breath is frequently quite fœtid: the breath of rickety, scrofulous children is known to have a sour smell.   The pulmonary vapour undergoes a remarkable change when other excretions are suppressed: thus, it smells strongly urinous in suppression of urine.   There can be little doubt but that, in certain forms of disease, a variety of miasmata and contagious principles are thrown off by the blood-vessels of the lungs, and that many of those remarkable changes called crises, which are occasionally observed in fevers, are effected in this way.—*British and Foreign Med. Rev. No.* 1. *from Zeitschrift für Physiologie*, Vol. v. P. 2.

4. *Researches respecting the carbonic acid of the blood.*—By L. Gmelin, F. Tiedemann and E. Mitscherlich.   We have already given some notice (No. XXXIV. p. 465.) of these researches, they however, offer so much interest, especially in connexion with the valuable investigations of Dr. Rogers, recorded in the original department of the present number, that we are induced again to recur to them, in order to add the following additional particulars respecting them, gleaned from the second No. of the British and Foreign Med. Rev.— Though the question whether carbonic acid exists in the blood, either free or combined with a base, is one of considerable moment, especially as regards the theory of respiration, the experiments undertaken by different chemists, with a view of determining it, have afforded very contradictory results.   In the present experiments one source of fallacy has been carefully guarded against, namely, the access of atmospheric air to the blood submitted to examination.   A small metallic tube, with a stopcock, was inserted into the femoral artery, and a similar one into the femoral vein, of a living dog; to each of the tubes an elastic gum catheter was adapted, along which the blood was permitted to flow, till the con-

tained air was wholly expelled; the end of the catheter was then brought under a glass jar, three and a half inches high, and one inch wide, previously filled with and inverted over mercury, and the blood was allowed to rise till it filled the upper half of the vessel, which was then conveyed under the receiver of an air pump.

At first, no air bubbles were emitted under the action of the pump from either kind of blood, nor until the exhaustion reached twenty-seven or twenty-eight inches of the barometer; at which time a quantity of aeriform fluid was evolved from both, so as to depress the mercury in the jar about an inch. On re-admitting the air, however, the evolved fluid suddenly disappeared, long before the atmospheric pressure was wholly restored, from whence the experimenters inferred, that it was merely watery vapour, generated in a Torricellian vacuum, and not a permanent gas. From this experiment, accordingly, they conclude that neither arterial nor venous blood contains free carbonic acid.

The experiment just related undoubtedly proves that no carbonic acid or other gas is emitted from blood on removing atmospheric pressure, a result which agrees with that previously obtained by Dr. Darwin and by Dr. John Davy, and is further confirmed by experiments made almost simultaneously with the above, but independently, by Stromeyer, and by Dr. J. Müller, of Berlin. But it is contended by Dr. Stevens, that the non-evolution of carbonic acid from the blood under the air pump does not amount to a proof of its non-existence in that fluid, since serum of blood purposely impregnated with carbonic acid cannot be made to yield it again by the mere removal of the atmospheric pressure: moreover, to show positively that free carbonic acid exists in the blood, he adduces an experiment, in which he obtained carbonic acid from venous blood on agitating it with hydrogen, and exposing it for an hour to the contact of that gas.* Without pretending here to discuss the question, we may be permitted to remark, first, that carbonic acid purposely added to blood may be fixed and retained in it by the soda which the blood contains, and secondly, that Dr. J. Müller could obtain no appreciable quantity of carbonic acid from blood on agitating it *for a long time* with hydrogen.† It seems therefore desirable that Dr. Stevens should repeat his experiment, with a view of determining the *amount* of carbonic acid extracted in this way from a given quantity of blood.

The authors mention as a fact worthy of notice, that coagulation took place as usual, though the access of air was prevented, and that the characteristic difference of colour of the two kinds of blood was obvious during the whole experiment, showing that the brighter colour of arterial blood does not depend on a difference in its mode of coagulation, for it was evident before coagulation took place; nor on the frothy state in which it is usually obtained, (as alleged by Dr. J. Davy,) for in their experiment the frothing was prevented.

To ascertain whether, as is stated by Dr. Davy, carbonic acid is absorbed in greater quantity by the serum of blood than by water, the authors added carbonic acid in successive quantities to the arterial blood employed in the previous experiment without removing the clot. The absorption was gradual, as no agitation was used, the temperature between 5° and 10° Cent. (40° and 50° Fahr.) In five days, one hundred measures of blood had absorbed one hundred and twenty of gas, and in ten weeks more, sixteen additional measures of gas were absorbed, in all, one hundred and thirty-six. In a subsequent experiment, one hundred measures of arterial blood absorbed in three weeks one hundred and forty of carbonic acid, and one hundred of venous blood absorbed in the same time one hundred and eleven of gas.

The next experiment was to determine whether the blood contains carbonic acid in combination with an alkali. Blood from the vein of a dog was collected over mercury as before, but in two separate quantities, both of which were submitted to the action of the air pump, after one of them had been mixed with concentrated vinegar. The same was done with arterial blood. In the jars containing pure blood, the mercury, which was an inch higher than in the former experiment, began to fall when the exhaustion reached twenty-six and a half inches, and, as before, the resulting vacuum disappeared the instant a little air was re-admitted. The arterial blood which had been mixed with vinegar, gave

* Phil. Trans. 1335, p. 2.　　　　† Handbuch der Physiologie, p. 315.
40*

out, at an exhaustion of twenty inches, many small bubbles of air, which at twenty-five inches occupied a space equal to one-third of the volume of the blood employed. On re-admitting the air, a small quantity of gas remained for a few moments, and then almost wholly disappeared. The same took place in the acidulated venous blood, but the gas appeared at twenty-three and a half inches of exhaustion, and at twenty-five inches occupied a space equal to the whole volume of the blood; on re-admission of the air, larger gas bubbles remained than in the arterial blood, though the quantity of venous blood employed was less.

From this experiment it was inferred that carbonic acid, combined with a base, is contained both in arterial and venous blood, but in larger proportion in the latter. For greater certainty, however, another experiment was made, by heating a portion of each kind of blood in a flask with vinegar, and passing the gas evolved through barytic water; from the respective quantities of carbonate of baryta obtained, it appeared that ten thousand parts of venous blood contains at least 12.3, and ten thousand of arterial 8.3 of combined carbonic acid; so that, the proportion in venous blood is to that in arterial as three to two.

<hr>

5. *Physiology of the Fifth Pair of Nerves, illustrated by a case of Carcinomatous Tumour destroying the whole of the Left Nervous Trigeminus.* By JOHN BISHOP.— In the month of Nov. 1831, I was called to attend Miss S., aged 55, born of parents in affluent circumstances, and who lived to an advanced age, but in whose family, on the maternal side, there was a disposition to cancer, of which complaint her sister died in 1823, in the fifty-second year of her age. At my first visit to this lady, she gave me the following history of her local as well as general health previously to that period. She stated that until the age of fifty years she had usually enjoyed good health, with the exception of an attack of typhus, and afterwards intermittent fever, which, however, she added, did not leave behind any results. In the year 1825, she first perceived a small tumour in the left breast, immediately under the nipple. For some time it occasioned no uneasiness, and during five years it remained almost stationary, but at the end of that period it began to enlarge, and ultimately suppurated, and no doubt was entertained by many eminent medical practitioners whom she consulted, that it was decidedly of a scirrhous structure: it did not, however, appear to have excited much constitutional irritation. The loss of some near relatives shortly before this period had produced deep and lasting grief, which preyed incessantly on her mind. In August, 1830, she had an attack of acute rheumatism, from which she did not recover until the month of December following, when she came to London, thinking the change of air and scene might be beneficial to her: but in this hope she was disappointed, having from the same cause relapsed into a state of severe suffering, which during the space of six weeks prevented her returning home. It was about this time that she began to feel an unusual creeping sensation on the left side of her chin, accompanied with numbness and stiffness, and a sort of itching pain. The tip of the tongue was painful and sore, and a constant pain was felt along the whole course of the lingual nerve. The numbness and stiffness gradually extended towards the cheek and left eye, until the month of July, when having received a shock by unexpectedly hearing of the death of an intimate friend, she was greatly alarmed at finding the left eye had turned obliquely inwards, and she subsequently observed that all objects appeared double. The eye regained its natural position for a short time, after which the obliquity permanently returned, and was attended with a sense of pressure at the bottom of the orbit. Soon afterwards the whole of the left side of the head, face, nostril, mouth, and tongue, were deprived of sensation, while their muscular motion remained entire. At this time blisters placed on the temples produced considerable inflammation, but did not excite the slightest pain, and she stated that fomentations which had been applied to the face too hot, scalded it without her consciousness. The globe of the left eye, which, independently of its obliquity, appeared healthy, was quite insensible to the touch, and she felt a conviction that it might be punctured with a sharp instrument without pain. At first, any object brought within its axis of vision appeared quite natural, but for some time before her death the optic nerve had lost its faculty of distinguishing colours, persons appearing to the eye, as she expressed herself, "white as statues." The left nostril

could not be stimulated by the most acrid substances. Neither snuff nor ammonia produced the slightest impression on the Schneiderian membrane, nor could any irritant excite an effort to sneeze, although the sense of smell remained unimpaired. The tongue and fauces on the affected side, were also perfectly insensible to touch or taste. A little acetic acid was placed on the tongue, but she could neither detect its quality nor even perceive its presence. She always masticated her food on the healthy side. During this process she often injured, unconsciously, the other side with her teeth, which were likewise utterly deprived of sensation, and small particles of food frequently lodged at the left angle of the mouth, without her being aware of it. Latterly, deglutition became extremely difficult; solid aliments required to be pushed over the root of the tongue, and liquids frequently returned unperceived by her from the left side of the mouth. She at length became slightly deaf in the left ear. For a long time previous to her death a wasting of the left temporal muscle was observed, producing the appearance of a protuberance in the situation of the temporal ridge of the frontal bone. A few days before her death, a perceptible alteration was taking place in the structure of the diseased eye, which was probably occasioned by flies, and other foreign substances, of whose presence she was unconscious, and which caused a slight inflammation of the external membranes. The pain which attended these symptoms was exceedingly acute, and almost without intermission day or night, until, after two years of the most agonizing suffering, she died, August 27, 1833.

During the treatment of this case none of the remedies suggested afforded any relief, although I had the advantage of consulting, in succession, Dr. James Johnson, Dr. Roget, Sir Benjamin Brodie, and Sir Charles Bell.

Post-mortem Examination.—The head was well formed, the pia mater very vascular, and a small portion of coagulated lymph was found between this membrane and the arachnoid. The lateral ventricles were full of serous fluid. The foramen of Monro unusually large. The plexus choroides were somewhat displaced. On raising the anterior lobes of the brain, a large tumour was seen occupying the left cerebral fossa of the sphenoid and temporal bones, to which it was firmly attached, completely obliterating the foramina rotundum, ovale, and the greater part of the foramen lacerum anterius. It extended inwards to the sella turcica, pushing up the optic nerve, which it had slightly flattened. It rested posteriorly on the superior petrosal sinus and pons varolii, where ulceration had taken place. The remaining portion of the brain appeared healthy.

REMARKS.—The extensive distribution of the fifth pair of nerves, its connexion with, and influences on, the senses, render its function an object of considerable physiological interest; but the situation and primary division of its trunk within the skull, render any experiments on it difficult or impossible, without endangering life. In the case just related, the whole of the fifth nerve was completely destroyed, whilst both the eye and the nostrils of that side had lost their sense of touch, retaining the faculties of vision and smelling, but in the tongue both the senses of touch and taste were extinguished. It rarely happens that this nerve is destroyed by disease, without involving the surrounding structures, of which insanity is not unfrequently the result. The intellectual powers were, however, unimpaired, and the patient was able to give very accurate descriptions of her feelings. It is probable that the obliquity of the eye was occasioned by the sixth, or abductor nerve, having been involved in the disease; the partial deafness which ultimately occurred by a similar affection of the portio mollis of the seventh pair, and the loss of sensibility to colour, by the compressed and flattened state of the optic nerve. The wasting of the temporal muscle was a natural consequence of its diminished action, mastication having been for some time performed on the opposite side. The eighth pair of nerves lying at some distance from the seat of disease, were not implicated. The sense of touch and taste, which in this case were quite abolished on the left side, cannot therefore be ascribed to the glosso-pharyngeal nerve, which was uninjured, but must depend on the trigeminal, which was obliterated.—*Lond. Med. Gaz. December* 12, 1835.

6. *Is conception possible without coition?*—Under this title, Dr. Casper, editor of the *Wochenschrift fur die gesammte Heilkunde*, has published in his journal a memoir, taken from the manuscripts of Prof. HEIM, comprising seven cases which

have for their object to establish an affirmative answer to the foregoing question. It is a problem, undoubtedly, of great importance, with respect not only to physiology, but also to legal medicine. Examples are incontestible of pregnancy while the hymen remains entire. The celebrated Heim, a man of great name and high authority in Germany, has even collected instances where conception took place, although the spermatic fluid was lodged only at the entrance, or before the orifice of the vagina. We may conceive this possible, if we admit that the fecundation of the ovum takes place from the emanation of the *aura seminalis.* But Heim goes still farther, and allows the possibility of fecundation by the simple aspersion of the semen on the lower part of the abdomen. In support of this opinion, he cites four cases, which he met with in his own practice, and three others from the papers of M. Ribke, professor of midwifery; which cases, according to him, leave no doubt of the possibility of the fact which he advances. We will confess that the perusal of these cases has not left on our mind the same conviction which appears to animate the author. But, could this be otherwise? This conviction of the celebrated Heim, was it not in consequence of the reliance which he placed on the persons who were the subjects of his observations? It is a purely *moral* conviction which he has acquired, and which cannot be possessed by him who has not the same faith in the veracity of the persons whose cases Heim relates.

These facts are of no importance by themselves. They only obtain weight from the name of the two celebrated men who have published them, and who still enjoy, among our German neighbours, unbounded credit and confidence. The last consideration alone has induced us to dwell on this delicate and long unresolved question; to which we call the attention of French accoucheurs and medical jurists.—*Gazette Médicale de Paris,* 26 *Sep.* 1836.

7. *Functions of the Fœtal Kidney.* By ROBERT LEE, M. D.—There is no positive information, Dr. Lee observes, in our systematic works on physiology, respecting the function of the kidney previous to birth. All the glands employed in the digestive process have considerable volume in the fœtus, and may be supposed to possess some activity. Abernethy did not think that the fœtal kidney secreted urine. The following fact is brought forward by our author, as decisive of the question.

" On the 2nd of January, 1835, Mr. Hay, of Osnaburgh Street, attended a patient who was delivered in the 8th month of a still-born female child. It had a double hare-lip, both its feet were clubbed, and the abdomen was so large that it passed with difficulty through the pelvis. Mr. Hay examined the body on the following day, and he found the distention of the abdomen to arise from an accumulation of fluid within the kidneys, produced by an impervious state of the ureters. The right kidney, which resembled a thin cyst filled with a watery fluid, was larger than the head of the child, the left did not exceed half this bulk. Both kidneys were removed from the body without the fluid they contained having escaped, and were in that state presented to me by Mr. Hay. An opening having been made into the pelvis of the left kidney, ℥iv. of a fluid resembling urine flowed out; the pelvis of the right kidney contained nine ozs. of a fluid having the same appearance, which was examined by Dr. Prout.

The following letter from Dr. Prout contains an account of the chemical composition of this fluid.

" I send a short account of the fluid from the kidneys of a fœtus in whom the ureter was found impervious.

" The fluid was of a deep brown colour, somewhat like diluted porter or table beer, transparent, and without any remarkable smell. Specific gravity about 10·12. Very slightly acid. On exposure to heat, it became opaque and deposited flakes of albuminous matter, which was next examined by the addition of an acid. The deposit was of a deep brown colour. The separated fluid was nearly colourless, and deposited on cooling a considerable quantity of lithic acid crystals.

" When evaporated to dryness and treated with alcohol, that menstruum was found to take up a principle strongly acid, and which assumed readily an imperfect crystallised form. I cannot venture to give this principle a name; it somewhat resembled the acid called amniotic, or rather allantoid, in some of its

properties, but differed from it in others. The alcoholic solution gave at first faint and somewhat doubtful traces of urea; on standing several days these became very distinct. After the albuminous matter was separated, ammonia produced a deposition of triple phosphate.

" These results prove beyond a doubt that the fluid was of an urinary nature, and render it probable, that as the liver in the fœtus secretes bile, so the kidneys secrete urine long anterior to birth; and that in a perfect state of the organs the fluid is constantly escaping through the bladder and mixing with the amniotic. This fact has been often suspected, or rather taken for granted, but has never to my knowledge been proved.

" I send a portion of the fluid containing a deposition of lithic acid crystals."

On the 12th February, 1835, Dr. Lee induced premature labour for a deformed pelvis, in a case of six months' pregnancy. Thirty-two ounces of pure liq. amnii flowed through a silver catheter. It was of a straw colour, neither acid nor alkaline. Neither Dr. Bostock nor Dr. Prout could discover any urea or uric acid in it. This renders it probable that, at six months' utero-gestation, a very small quantity, if any, urine is formed by the fœtal kidney.

Mr. Howship has pointed out some curious cases from his treatise on the urinary organs, where urine was found in the bladders of children born before the full term. Sir B. Brodie also communicates a case which seems to decide the point. A male fœtus was brought into the dissecting room, of nearly the full time. The external orifice of the urethra was impervious, and the bladder was found to be moderately distended with urine, as were the infundibula and pelvis of each side. The urine was examined by Mr. Brande, who proved that it contained the usual properties of urine, except uric acid. Other instances are also quoted. The inquiry is curious in a physiological point of view.—*Med. Chirurg. Rev. April*, 1836.

8. *On a Peculiar Animated Motion observed in the Globules of the Blood.*—Our esteemed cotemporary, the *Edinburgh Medical and Surgical Journal* for April last, contains an account of a curious phenomenon of this description, by Messrs. EMMERSON and READER.—The belief seems now to be pretty generally entertained that the organic particle or globule, both of the blood and of the sap of plants, possess, while it is a component part of the circulating fluid, a vital power or movement inherent in itself, and independent of the influence of the vessels or tubes in which it moves. The truth of this opinion appears sufficiently established by the rapid and peculiar movements observed in the globules of various animals, by such motion being destroyed by electricity, acids, alkalies, or by whatever destroys their vitality, and more especially by attentively observing the slow and circular route of the globules of the *Chara hispida*, in which, as in other plants, the vessels possess but little or no propulsive power, and the circulation consequently is carried on, either by the formation of a partial vacuum, or by a vital action inherent in the globule itself.

The movement described by Messrs. Emmerson and Reader, does not take place until blood has been drawn from a vein for five or six days. It was first observed by Mr. Reader, and when first seen by Mr. Emmerson, he imputed the extraordinary animated motion of the globules to the effects of incipient decomposition in the fluid, or to some change in the organic structure of the globules themselves; but from further observations and inquiries into the probable cause of this action in the particles of the blood, he was convinced that this motion must be the effect of something more than merely a mechanical or chemical impulse.

The following is Mr. Reader's memoranda of the singular phenomenon in question:

" It was on the 6th of September, 1834, that, after a series of observations on the blood, I first observed the globules to have a peculiar motion one among another under the microscope. Doubting the accuracy of my vision, I submitted the blood, which had been drawn from a vein five days before, to repeated examinations under different lenses, without in any degree impugning the previous observation. The serum in which the globules floated was then slightly diluted with distilled water, when I witnessed the most unequivocal living action among the globules, moving about in all directions, sometimes actually appearing to coalesce,

if such an expression may be admitted, and then separating; passing over, and on one side of each other, and continually altering their shape, position, and appearance; and as they rolled over, there occasionally seemed to be organs obscurely perceptible under the highest magnifier. These bodies possessed a slightly tinged reddish-yellow centre or nucleus, with an envelope or circumference of a pale whey-like colour. I became so strongly impressed with the extraordinary nature of this new fact in the physiology of the blood, that I continued these observations for four or five months, during which time the facts were witnessed and confirmed by my intelligent and scientific friends. I perfectly assured myself and them, by very numerous, long-continued, and often-repeated experiments and observations, that the motions alluded to were entirely (to use the words of Raspail) independent of any inclination of the object-holder, agitation of the air, shaking of the floor of the apartment, the hands, the breath, the pulsation or the respiration of the observer; or, in short, by any other delusion, either mechanical, chemical, or optical. Hence I concluded that I had fully established, by the most careful observations, the truth of the following phenomena.

" 1st, That the globules or spherical particles of the blood possess an inherent vital action, with the faculty of voluntary motion among themselves. 2nd, That, although this peculiar action or voluntary motion is not visible until the interval of a few days after they have been drawn from the body, yet it is not the result of a chemical or fermentative process in the fluid in which they float, but that it is an action *sui generis*, appertaining to themselves alone, since each globule retains its essential characteristic, and in no instance loses its individual identity. Neither can it be the effect of a new order of existences arising from the decomposition of the blood, since in every instance in which decomposition or fermentation had taken place, the globules themselves exhibited not the least voluntary or peculiar motion. 3d, That acids, salts, and alcohol, if added to the blood, when it was first drawn, entirely prevented and suspended the occurrence of this living action;—the salts, muriate of soda and nitrate of potass, generally reducing the diameter of the globules, either by the solution of their outer coat, or by condensation of their substance, and the diluted acids generally disintegrating their bodies. Sulphur seemed to induce a mass of animalcular motion in the serum of the blood, in addition to the action peculiar to the globules themselves.

" The lenses principally used in these observations were, 1st, a single plano-convex lens on Wollaston's plan; 2nd, a doublet plano-convex lens do.; 3d, a similar lens; 4th, a compound powder with one of Cary's magnifiers of 100;—magnifying the diameters from 200 to 700 times.

" The latter power, No. 4, exhibited their motions most distinctly, from the field of view being much enlarged. Various other powers and instruments were also employed in the course of these observations; but the principal reliance was placed on the four above-named."

PATHOLOGY.

9. *Clinical Lecture on Affections of the Cervical Spinal Cord, simulating Laryngitis.* By Dr. CORRIGAN.—M. Delaney, aged 49, a porter, was admitted labouring under excessive dyspnœa, and stridulous respiration. He had cough, with tenacious sputa. His countenance was anxious; his skin cold and clammy; pulse very weak and small, beating 108; abdomen slightly tympanitic. He walked to the hospital, and at first sight the attack seemed to be acute laryngitis. On getting him into bed and examining him accurately, it was found that he had lost sensation from the epigastrium downwards. A week before admission, while carrying a bag of coals, he fell on his face, but felt no bad consequences until the day before he applied here, when he was seized with dyspnœa and stridulous respiration, for which he was bled. He had pain in the neck; and on making even slight pressure on the cervical vertebræ the stridulous breathing was increased to such a degree as to make us dread to repeat the experiment.

Treatment.—He was cupped on the spine to ℥ xij; a blister applied afterwards; calomel and opium given in doses of ten grains of calomel to one grain of opium

every third hour, to three doses. Next day skin hot; relief from all the symptoms. On the fourth day after admission, discharged well.

This has been in many points an interesting and instructive case. When the man presented himself among the dispensary patients, the noise of his breathing was so loud, his respiration was so stridulous, and the expression of distress in his countenance was so marked, that before the patient approached me, I said to the pupils around me, "there is a case of acute laryngitis." On the man's speaking to me, I was, however, struck by the singularity of the voice remaining nearly unaltered, or being not at all either hoarse or whispering in proportion to the other symptoms. He was then removed to bed, and a more detailed examination made. It was found that he had lost sensation in the skin below the epigastrium, but motion remained perfect. This symptom at once directed us to the spinal cord, and then we ascertained that the spinal column in the neck was tender, could not bear pressure, and that even very slight pressure on it aggravated the affection of the larynx to such a degree as to threaten immediate suffocation. The affection of the larynx it was now evident was spasmodic, dependent on disease of the spinal cord, and the treatment was directed to the cervical spine. He was cupped over it, and from the cupping obtained immediate and great relief. The cupping was followed by a blister. He got calomel and opium, was enjoined rest, and in a few days was dismissed well. The influence which disease of the spinal cord may exercise upon the larynx, as in this case, we can explain by recollecting the connexion of the par vagum and laryngeal nerves with the superior cervical plexus; and the influence thus exerted is a practical point well worthy of being recollected. I can exemplify it, not alone by the case before us, but by a case from another source, and supported too by post mortem examination. I am always very desirous in explaining the nature of cases while under treatment with us, to illustrate them, if possible, and support the explanation given of them, by post mortem examination of similar cases. Our diagnosis and treatment are thus based upon the best of all supports—pathology.

The case to which I allude is related in Ollivier's work on Diseases of the Spinal Cord; and resembled ours in having set in with the most distressing symptoms referrible to the larynx and throat.

M. de La Foix, aged 21, a medical student, and epileptic from infancy, was attacked in February, 1822, with a sensation of slight soreness in his throat. After a few days he was unceasingly tormented by a sensation of choking, with nausea and desire to vomit, and he felt as if the uvula were swelled and lying down on the larynx. Swallowing was difficult, and respiration was stridulous (sifflante). He had also a constant and acute pain in the inferior and posterior portion of the head; no cerebral disturbance. At the same time numbness came on in the left hand and arm, and soon after in the right, and the sensation of suffocation in the throat continued unrelieved. For the full details of the case, I must refer you to the second volume of Ollivier's work. It is sufficient for our purpose here to say, that the difficulty of respiration, and of swallowing, the sensation of a foreign body over the larynx, producing suffocation, continued, and were aggravated, day by day, until the eighth day from the first invasion of the symptom, when he died.

Autopsy.—All the meningeal veins (particularly those of the cervical portion) of the spinal cord, were densely injected with dark fluid blood, and into the cellular tissue which connects the posterior surface of the dura mater and the vertebræ in the cervical portion of the spinal column, was effused black and slightly coagulated blood, for an extent of about two inches. This effusion corresponded to the bulbing of the spinal cord, which gives origin to the brachial plexus. The spinal cord itself in this situation was remarkably softened, and the ramollissement was principally in the gray portion, which was of a rosy hue, and pulpy. This change also occupied about two inches, and the pia mater corresponding was remarkably injected. The trachea and larynx, the pharynx, uvula, and tonsils, were all sound. There was chronic diseases of the membranes of the brain and spinal cord, accounting for the epilepsy, under which the patient had laboured from childhood; but those we need not note here.

These two cases, the one just related from Ollivier, and the one under our care, are very instructive when taken together. Both set in with most distressing symptoms referred to the larynx and throat; and in our own case so strongly

similar to laryngitis was the attack, that our patient was bled the evening before admission, for supposed laryngitis, was sent into us as a patient labouring under that disease, and a careful examination alone prevented our falling here into the same mistake. In Ollivier's case, death took place in eight days. In ours we happened to be more fortunate. We have, in these two cases, instruction combined in the most useful form. We have two cases with similar symptoms. On the one hand, death revealing to us the cause of the symptoms; on the other hand, knowledge thus obtained has been made available to save life and restore health. There is yet another point in those cases, to which I wish to draw your attention, viz., the suddenness with which the very urgent symptoms set in, very strongly marked in our case, and less strongly in Ollivier's case. In our case, the injury which produced the attack had occurred a week before, and no evil consequence had supervened until the day before admission, when our patient was rather suddenly attacked with dyspnœa, &c. In Ollivier's case, the symptoms for several days were so slight, that they obtained little attention, when suddenly they rose to an alarming pitch. The same is often observed in injuries about the head, which are followed by no bad consequences for several days, when often suddenly symptoms of most severe brain disease set in, and terminate life within a very short time. In such instances the diseased action goes on latently, without any urgent symptom or functional disturbance for some time. The nervous centres appear capable of bearing, without injury to their functions, vascular derangement to a certain point; but once that point is passed, ever so little, their functions are at once suddenly struck down or perverted. The same law is observed not alone in idiopathic diseased action of the brain and spinal column, but even in the action of remedies, or poison on the nervous system. Strychnine may be given with impunity to a certain point; pass that point ever so little, and even with a small dose, and the most violent convulsive actions will set in. The same has frequently been observed in the administration of hydrocyanic acid. A certain dose has been given without any perceptible effect; and increased ever so little, almost poisoning has followed. In morbid growths pressing on the brain, in congestions of it, threatening to terminate in ramollissement, the symptoms for days, or for years perhaps, are not urgent; something occurs from mental emotion or physiological excitement, to increase, and perhaps but slightly, the irritation; the point of tolerance is passed, and at once, as in the case under our own observation, the danger becomes imminent. The effects that are seen in such instances are generally explained on the supposition that the poison has been accumulating in the system, until the last dose, added to the quantity previously given, makes a sum beyond what the system can bear. In some cases, however, the poison, as Prussic acid, is one that we can scarcely suppose to be thus retained and accumulated in the system; and such a supposition will not at all explain those cases where urgent symptoms of nervous disturbance suddenly set in, and in cases where poison had not been administered, but which may, I think, be accounted for on the explanation I have offered. The explanation thus hastily glanced at, is intended, however, to apply only to the action of remedies or poisons, such as strychnine or Prussic acid, which act directly on the nervous system. The knowledge of this law should put us on our guard, make us more watchful, and urge us to be, as it were, beforehand with treatment.

There is yet another affection of the larynx which may have its cause in irritation of the cervical spinal cord, and which I cannot introduce more appropriately to your notice than on this occasion. Infants are liable to a spasmodic affection of the larynx, closely resembling croup, while the spasm is present; the respiration is stridulous, the dyspnœa extreme, and the face congested, as in croup; but it differs from inflammatory croup in this, that when the attack passes off (and it seldom lasts intensely for more than a few minutes,) the voice becomes natural, and the stridulous respiration totally ceases. To the spasmodic affection of the larynx, spasms of the extremities are soon superadded, and in one of these convulsive attacks the infant is at last carried off. This spasmodic affection of the larynx, and of the upper extremities, which are more particularly affected by the convulsions, sometimes arises from irritation of the cervical spinal cord, and this irritation perhaps again arising from injury or rough usage of the delicate cervical spine of the infant, as yet unprotected by voluntary muscular support. To treat it with success, it is requisite to keep in mind this among the many

causes from which it may arise. One of the most remarkable cases illustrating this cause of spasmodic affection of the larynx, is given in the Edin. Med. and Surg. Journ. for January, 1833.

A child, aged four months, and previously healthy, was attacked with more frequent fits of crying than usual, particularly at night. At the expiration of a week, with the fits of crying, there was an evident sense of suffocation for a moment, but as soon as the child cried freely this affection disappeared. At the end of two months respiration was now not only further impeded for six or eight seconds, but attended with a squeaking or stridulous noise, which resembled sometimes the crowing of a cock, and which always terminated by crying. For several weeks little alteration was apparent, till at length a new symptom supervened, in the form of a convulsive affection of the hands: the thumb was drawn into the palm of the hand, whilst the fingers were stiff and extended, or rather reflected, or thrown somewhat backwards. Convulsions of a general character soon followed, which occurred for a month once a week, afterwards came once a day, and soon after twice a day for three months. These (the general convulsions) were preceded by the above symptoms, which terminated by a strong expiration and crying for a few moments, but instantly after the child stared as if frightened at something; the pupils became dilated, and in a few moments the eyeballs became somewhat distorted and fixed, the head and shoulders thrown back, the face purplish or blue, and the whole body stiff, and on the stretch, and respiration suspended, but in a short time the spasm abated; the face became pale, there was moaning for a while, and afterwards sleep. During the whole of this time, emetics, calomel, antispasmodics, &c., were given, with little or no good effect. The circumstance of the child not using his legs as much as was expected, at length led to an examination of the spine, and on pressing the third or fourth dorsal vertebræ there was always cringing and crying. There was neither deformity nor discoloration of the skin; four leeches were applied. This acted like a charm: no return, except a slight one, a few hours after the application of the leeches. In two days the leeches were repeated. The child has passed through teething, and is now eighteen months old, without any return. The importance of early ascertaining the origin of spasmodic diseases in children, which may have their cause in irritation of the spinal cord, can scarcely be overrated, when we recollect that spasmodic affections, at first trifling, may terminate in confirmed epilepsy, and that in many cases of confirmed epilepsy, the only morbid changes observable after death are ossifications, or cartilaginous or tuberculous depositions in the cord or its membranes, and the origin of which was, in the first instance, only irritation.—*London Med. & Surg. Journ.* 30 Jan. 1836.

10. *Complete Disappearance of the Beating of the Heart.* A case of this, of some weeks continuance, in which the throbbing of the heart could not be distinguished even by the stethoscope, is recorded in a German Journal by Dr. RAMPOLD. No clue is given to the explanation of this curious pathological phenomena.—*Gaz. Med. de Paris,* 21st Nov. 1836.

11. *Partial Aneurism of the Heart.* The *Revue Médicale* for October and November, 1835, contains the details of an interesting case of this rare disease, with some remarks on the causes, seat, mode of formation, symptoms, and treatment of the affection, communicated by Dr. PRUS, Physician to Bicêtre, to the Medical Society of Paris. Mr. Breschet in his account of the post-mortem appearances of the celebrated Talma, whose heart presented this pathological alteration, has collected descriptions of nine other cases of a similar disease. These, with eight cases since recorded, and the one of Dr. Prus, making nineteen, are all the cases of this affection which have as yet been put on record.

The subject of Dr. Prus' case was a man 70 years of age, who succumbed with symptoms of emphysema of both lungs, and of an affection of the heart, supposed to be hypertrophy of the left ventricle. On post-mortem examination, an aneurism was found in the left ventricle, of an irregular ovoid figure, the large extremity corresponding to the interventricular septum, and to the anterior face of the left ventricle, whilst its small extremity raised up the point of this ventricle.

The only symptoms which appear especially to belong to this affection are, a sensation of a warm fluid flowing in the left side of the chest, below the nipple, and the absence of all impulsion, of all sound, at the spot corresponding to the apex of the heart, whilst the ear perceives the shock given to the thoracic parietes by the upper two-thirds of the diseased ventricle.

The treatment in such cases must of course consist in perfect quietude, and measures calculated to lessen the activity of the heart's action; as venesection, digitalis, &c.

12. *Complete Obliteration of the Abdominal Aorta.* An interesting example of this has been recorded by M. Barth in the *Archives Générales* for May, 1835. The subject of the case was a woman 51 years of age, of rather feeble constitution, who, four years before her death, was affected with a numbness, at first in the right lower extremity, and some months afterwards in that of the left. Subsequently palpitations came on and continued; the patient walked with difficulty in consequence of the numbness of her lower limbs, attended with coldness and pain in these parts. The last year of her life her sufferings increased, and she entered the hôpital de la Pitié. At this period, in addition to the symptoms already noticed, her lips were of a violet colour, her heart beat tumultuously, and her pulse was quick and irregular. Soon afterwards, hemoptysis, with extreme oppression came on, and the patient died ten days after her admission.

On *post mortem examination* the heart was found large, and its cavities dilated without thinning of their parietes; the left auriculo-ventricular orifice was much contracted; the aortic valves rigid; the aorta obliterated near its termination by a species of dense coagulum, upon which the aorta was contracted. This coagulum extended from the renal to the inferior mesenteric artery, and sent into the iliacs and their divisions, prolongations in great part canaliculate, and presenting traces of organization. Several arteries of the abdomen were also obstructed.

The size of the different parts of the enlarged aorta, of the principal branches which arose from this vessel, and of a great number of vessels of the second order, compared with the average size of these vessels, showed that the dimensions of the trunk and of the arterial branches of this subject were every where less than the ordinary size. But what is most interesting in a practical point of view is that, so far as observed, there was no increase in the size of the vessels through which the collateral circulati on was carriedon. This proves that the developement of the collateral vessels is not necessary for the support of life in parts below a trunk artificially obliterated, and that this dilatation may be wanting in case of spontaneous obliteration, and that in certain circumstances the capillary circulation may suffice without the concurrence of the enlargement of the anastomotic branches.

13. *Entire Absence of Blood following a Cerebral Affection.* An interesting case of this description is recorded in a German Journal by Dr. Harlin. The subject of it was a woman 46 years of age, who, from her infancy, had laboured under imperfect hearing, which had terminated in complete deafness. For ten years she had daily bad headache. When first seen by Dr. H. (January 28th, 1833), she exhibited the following symptoms:—Cephalalgia, general debility, great nervous irritability, pulse regular and slow, constipation. The application of leeches and the discharge of the menses, afforded no relief. The strength diminished, and fifteen days before her death she appeared dying; there was no pulse in the radial artery and feeble and intermittent in the carotids. This state continued eight days, when the pulsation of the carotids ceased also, whilst those of the heart were very regular though scarcely sensible. The patient slept almost constantly, waking momentarily and taking all the food offered to her. This state continued five days. Two days before her death (24th March), the beating of the heart had entirely ceased, the patient was tranquil, cold; respiration alone of the functions was perceptible; this condition terminated in death on the 26th of March.

The post-mortem examination made thirty-six hours after death, showed an almost total want of blood throughout the body, except in the left ventricle of the heart, which was very flaccid, and contained nearly one and a half ounces; the ves-

sels of the membranes of the brain also had their ordinary quantity of blood, and of course in a relative state of plethora. There were two hydatids of the size of a nut in the lateral ventricles. Nothing else abnormal was discovered.—*Gaz. Med. de Paris*, 21st Nov. 1836.

---

14. *Remarks upon many symptomatic affections which are encountered in cases of irritation of a greater or less portion of the spinal marrow.* The 44th Vol. of *Rust's Magazine*, contains an interesting memoir on this question, by Dr. Ens, with the details of nearly sixty cases, demonstrative of the important *rôle* which disease of the spinal marrow plays in a host of affections, the character of which were formerly entirely misunderstood. According to the author there are no diseases or morbid phenomena which cannot result from an irritation of a portion, or of the whole extent of the spinal marrow; and this assertion will astonish the less if we consider the multiplied relations which this part maintains with all the other organs of the economy.

Dr. Ens has classed the different morbid forms under which spinal irritation may appear, in the following manner:

I. Diseases which particularly affect the nervous system.

1st. Mania and melancholia; nine observations.

2nd. Spinal choræa of Stiebel; three observations.

3d. Opisthotonos, with and without symptoms of chorea; once with tonic spasm of the jaws; one observation.

4th. Continued and periodical vertigo; two observations.

5th. Vertigo with amblyopia and dysphagia; one observation.

6th. Chronic amblyopia; three observations.

II. Diseases which affect the nervous and sanguineous systems at the same time.

1st. Nervous fevers; four observations.

2nd. Intermittent fevers; three observations.

III. Diseases which are more particularly arranged among affections of the sanguineous system.

1st. Affections of the thoraic organs.

a. Cough, dyspnœa, fever, apparent commencement of pulmonary phthisis; four observations.

b. Pleuritis, and pleuro—pneumonia; four observations.

c. Confirmed phthisis; four observations.

2nd. Affections of the abdominal viscera.

a. An affection simulating colic; three observations.

b. An affection at first simulating colic; afterwards cancer of the stomach; two observations.

c. An affection presenting itself under the form of the paralysis of Pott; one observation.

d. Chronic vomiting; three observations.

3d. Hæmorrhages accompanying affections of the spinal marrow.

a. Uterine hæmorrhages; three observations.

b. Pulmonary hæmorrhages; two observations.

4th. Difficulty of menstruation accompanied by chlorotic and hysterical phenomena; two observations.

Numerous as are the diseases which we have just enumerated, there yet exists an infinity of shades of morbid phenomena by which spinal irritation is betrayed.

Each of these morbid forms presents, besides the characteristics peculiar to the species of malady which it simulates, an order of phenomena common to all, which distinguishes them as affections, depending upon an irritation of a portion of the spinal marrow of a greater or less extent.

The most characteristic sign of these affections is, according to Dr. Ens, "a greater or less degree of sensibility of a more or less extended portion of the spinal marrow to external pressure, a pressure by which we can augment at will the corresponding sympathetic pain." This characteristic is presented in almost all the facts observed by the author.

In some cases there does not exist an exact correspondence between the portion of the spinal marrow sensible to the touch, and the part of the organism

sympathetically affected. This want of correspondence has been remarked chiefly in the sympathetic affections of the brain.

Beside the local pain which is excited by pressure upon the vertebræ, the diseases depending upon spinal irritation may be recognised by the following symptoms. From the commencement of the disease of which the affection of the spinal marrow takes the form, whether it may be seated in the brain, in the chest, or in the abdomen, the patients feel the greatest lassitude on the least fatigue; it often appears to them that their knees are going to give way; they experience in the epigastric or in one of the hypochondric regions, or often in the superior portion of the abdomen a feeling of tightness, occasioning dyspnœa, frequent yawning, sighs, and sometimes sneezing. Generally there supervenes vertigo with palpitations of the heart; these two symptoms are absent when the inferior portion of the spinal marrow is affected; in some cases the appetite is morbidly excited, mostly, however, it is regular and natural even in the last periods of the disease. Wine and other excitants cannot be borne; in the commencement there are no signs of febrile irritation; the patients can attend to their occupations, but they are sensitive to the impress of atmospheric air.

In certain cases, the preceding symptoms are accompanied, at the end of one or two months, by an inflammatory irritation, which sometimes appears to be located in one, and sometimes in another organ; this state is frequently associated with lypothymia, convulsions, and irregular chills.

But generally the inflammatory irritation does not supervene until the expiration of six months, a year, and sometimes a later period. It may even happen that the strength becomes exhausted in so gradual a manner as scarcely to be perceptible, without febrile reaction; in this case the patients can support themselves until a few hours previous to death.

But during the developement of the fever, the disease, with alternations of better and worse, continues to progress; to the existing symptoms new ones are added; the debility increases and forces the patients to abstain from their occupations: the vertigo increases to such a degree as to render the gait uncertain and tottering; the pains in the epigastrium become more intense; the patients suffer a sensation of drawing, of burning, or of terebration; it also sometimes appears to them as if their thoracic or abdominal parietes were ready to burst. A very frequent symptom, particularly when the irritation is seated in the lumbar region of the spinal marrow, is experienced at this epoch of the disease; i. e. a very annoying pulsation in the epigastrium which appears to come from a vessel of large calibre, (is it from the abdominal aorta, or the cœliac trunk?); frequently, also, the patients suffer in the præcordial region a sensation as if a heavy body (is it the heart?) were sustained by a single thread, and which threatens each moment to fall; sighs are accompanied by groaning; the necessity for air becomes so imperious, that the patient makes frequent and long inspirations. In the mean time, the sympathetic affection continues to progress. Menstruation, when it exists, ceases after some irregular returns; sometimes uterine hæmorrhage supervenes, particularly when the menses have been for some months suppressed. At first there is constipation, and then the alvine evacuations occur only every three, four, six, or eight days; more rarely diarrhœa is established; the excretion of urine is less affected. In those cases in which the functions of the bladder are altered, dysuria and ischuria are most frequently observed; in two cases M. Ens has met with complete incontinence of urine; he has never remarked, as some authors pretend, that the quantity of urine was usually diminished.

There also exists other less constant symptoms of irritation of the spinal marrow: these are numbness, pains, spasms of the limbs, painfully annoying cramps in the calves of the legs, usually at night; sometimes these cramps attack one or the other of the middle, the ring or the little finger, and in some rare cases one of the great toes. Œdema of the feet also belongs to this category of symptoms.

A very common phenomenon is the interruption of sleep; in some cases this has failed for weeks and whole months. More rarely a state of somnolency more decided than customary, is observed. The sight in the greater number of cases is diminished or perverted, there are some exceptions when the lower part of the spinal marrow is more particularly or alone affected. Generally the patients, in wishing to look at an object feel their sight troubled; it is impossible for them to

read, for they soon confound characters and lines, which appear to them as blue lines before the eyes. Flashes of light and diplopia are more rarely observed.

The sense of hearing is less frequently affected than that of sight; sometimes, however, there is a buzzing, tingling and perception of imaginary sounds. In these cases the memory is so much weakened, that the patients can not recall what they have done or said a moment before.

The taste is sometimes perverted or entirely destroyed; in some cases M. Ens has observed stammering, and in one, complete aphonia which lasted for five weeks.

A great number of patients are affected with clavus hystericus, or more ordinarily there is a violent pain extending over the whole head, which forces them to cry out in despair. In some of these cases the author has seen all the hairy scalp swelled and œdematous.

There sometimes exists an intense pain along the course of the pneumogastric nerve upon the sides of the neck, which is referred by the patient to the tracheal artery; at other times the persons affected experience the sensation of the globus-hystericus in the abdomen. One man said that he felt in bending, in addition to pain in the back, a retraction of the abdominal muscles causing so great a hollow as to admit the hand. Other persons complain of a pain in the back, as if drops of cold water were running slowly along the vertebral column, or as if pieces of ice were applied at each instant. Twice the author has observed the spasmodic pouting of the lips of M. Olivier; once trismus and once opisthotonos.

The patients generally lie on the back or inclined towards the affected side, and experience great pain and difficulty in turning; the skin during the time or in the intervals, is fresh, pale or icteric in some, particularly acute cases, characterized by accessions of irregular chills, a very remarkable phenomenon is observed, viz. that during the paroxysms of cold the skin is comfortably warm, and even moist, and that it becomes cooler as this attack draws towards its end, until it becomes of an icy coldness or at the moment when the paroxsysm terminates, the patient experiences a sensation of natural heat within.

When once febrile action is evinced, the prognosis becomes more serious, and the success of the treatment uncertain. The patients are confined to their rooms or their beds. The appetite and digestion, until now regular, become deranged; poignant pain or a burning heat passes over and traverses the spinal column; the emaciation increases. If the disease is most particularly seated in the chest, the cough which previously was dry now becomes humid, and by degrees a true pulmonary phthisis is developed. At this period the decubitus described by M.M. Olivier and Hinterberger, is remarked to a greater degree than the author has observed in any other affection.

The last observation which concludes the general picture of affections depending upon an irritation of the spinal chord, is that the fever which is sometimes developed, after having run its course, suddenly stops. If the fever does not take this crisis and the disease is not brought back again to its former chronic state, it may happen that the disorder of the nerves at first spread over the whole system, becomes concentrated in the brain; in this case a very serious state of apyretic delirium is developed.

Such are the general symptoms which characterize the diseases dependent upon an irritation of the spinal marrow; these symptoms have been observed in the sixty cases which Dr. Ens gives at the end of his treatise; and which would occupy too much space to be inserted here; we must be satisfied with remarking that in all these cases, pressure upon the vertebræ has not only occasioned a more or less acute pain in the place itself, but has always increased the sympathetic affection, whatever might be its seat. The irritation of the part of the spinal marrow most frequently observed, is from the last cervical vertebra to the eighth or ninth dorsal; also the sympathetic affections of the chest and of the upper part of the abdomen, are those which are by far the most common; it is not uncommon to see cough, dyspnœa, pain in the epigastrium, and palpitation in the cœliac trunk, accompanying the pain and morbid phenomena arising from the irritation of the cervical and lumbar portions.

The method of treatment proposed by Griffin, Hinterberger and others, con-
41*

sisting in the employment of leeches, vesicatories and opiate mercurial frictions over the painful spot, and in the administration of purgatives and of calomel united with opium given internally, has been, in most cases, crowned with complete success, and is one of the arguments which best supports the existence of sympathetic diseases, depending upon a spinal irritation.—*Gazette Médicale, de Paris* 14 Nov. 1835.

15. *On the Pathology of Paraplegia.* By ROBERT J. GRAVES.—By paraplegia is meant, as you are aware, that species of paralysis in which the lower extremities are affected, a paralysis frequently embracing loss of motion and loss of sensation in the lower extremities, accompanied in many instances with derangement of the motor power of the bladder and rectum. Now I wish you clearly to understand that it is not my intention to describe the symptoms or discuss the causes of those species of paraplegia which are well ascertained, and of which you will find satisfactory descriptions in your books; under this head may be classed all those cases which are produced by disease of the spinal marrow, its membranes, the vertebræ or their appendages, their ligaments, and diseases directly affecting the great nerves which supply the lower extremities. All these matters have been sufficiently studied, and require no additional observations from me; my object is to elucidate some of the obscurer varieties of paraplegia.

Before I commenced my investigations on the subject, pathologists, in endeavouring to ascertain the causes of paralysis, sought for the sources of the disease almost solely in the centres of the nervous system. They looked for the causes of paralysis in the brain or spinal cord, where they supposed it originated either in organic or functional derangement of these important organs. In the lectures to which I have already referred, I showed that this mode of accounting for all forms of paralysis, by referring them to original disease of the nervous centres, was in many instances incorrect, and proved, I think to the satisfaction of the class and those who read the lectures, that a most important and influential cause of paralysis had been hitherto nearly overlooked, a cause which, commencing its operation on the extremities, and not on the centres of the nervous system, might, by a reflex action, produce very remarkable effects on distant parts. I brought forward on that occasion many arguments, facts, and cases, to prove the possibility of such an occurrence, to show that it frequently happens that impressions made on the extremities of the nerves will generate a morbid action in them, that this morbid action will be conveyed along their branches and trunks to the spinal cord or brain, and that, continuing its propagation, it may, by a retrograde course, be carried thence along the nerves to distant organs, and in this way give rise to disease in parts originally intact and healthy. I brought forward several instances to prove that when a certain portion of the extreme branches of the nervous tree has suffered an injury, the lesion is not confined merely to the part injured, but in many instances is propagated back towards the nervous centres, and that in this way not only the nervous filaments of the injured part may be affected, but also the main trunk of the nerve and other branches; or that the lesion may reach the brain or spinal cord, and thus produce still more extensive effects on the system. What I endeavoured to impress upon the class at that time was, that pain, numbness, spasm, and loss of the power of muscular motion, may be produced by causes acting on the extremities of the nerves, and that such affections commencing in the extremities of the nerves may be propagated towards their centres so as to be finally confounded with diseases originating in the centres themselves. For a detailed account of my views on this subject I beg leave to refer to the published lectures; at present I shall content myself with recapitulating a few of the facts on which these views were grounded.

If you place your hand in snow or ice-cold water, you will find that it is not merely the parts subjected to the influence of cold that become numb, and that the diminution of power is not entirely limited to the muscles concerned in the peculiar motions of the fingers, but extends also to those of the fore-arm, by which the principal motions of the hand are performed. Here the impression of cold is found to affect not only the parts immediately exposed to it, but also parts that are quite removed from its influence and warmly covered. We see that not only

the muscles attached to the fingers, but also those of the fore-arm, undergo from this cause a temporary paralysis. Now, if a cause of a trifling nature, and acting only for a time, can, when applied to a part, produce loss of power in another and more central part, we may infer that the same cause acting permanently might produce permanent paralysis of the latter. We can therefore conceive how in this case the agency of cold might travel upwards and reach the muscles of the arm also, and thus we should have a change, commencing in the tips of the fingers, propagated to parts at a considerable distance from the situation of the original lesion. Again, we find that an injury affecting one branch of a nerve will be propagated by a retrograde action so as to affect another and distinct branch, as was exemplified in a case mentioned in my former lectures on paralysis. A young lady, having wounded the inside of her ring finger with a blunt needle, observed that she had, in consequence of the injury, a considerable degree of numbness, not only in the wounded finger, but also in the little finger next to it. Here we find that an impression made on the nerve of one finger not only affects that finger, but also travels backwards so as to operate on the branch given off by the ulnar nerve to supply the little finger, *and given off, observe, above the place of the wound,* so that the phenomena were identical with those which would arise from an injury inflicted on the branch which supplied both fingers. Within this last month, I have had an opportunity of witnessing a very striking fact of this nature. A young gentleman, distinguished for the extent of his classical and mathematical acquirements, and who had just succeeded in obtaining the senior wranglership, swallowed a small but angular piece of chicken-bone. It lodged low down in the œsophagus, and was not pushed, by means of a probang, into the stomach until after the lapse of more than an hour. Considerable inflammation of the pharynx, œsophagus, and surrounding tissues, was the consequence; on the third day of his illness he got a violent, long continued, and ague-like rigour, which terminated in a profuse perspiration, and ushered in a well marked inflammation of the neck of the bladder. In the next place, we find that impressions affecting the frontal branches of the fifth nerve may, by a reflex action, operate on the retina so as to cause blindness. Here the morbid action travels from the circumference towards the centre, and is again reflected towards the circumference so as to affect a separate and distinct part. Of this I lately saw a curious and instructive example. A medical student, travelling through Wales on the outside of the mail, was exposed for many hours to a keen north-easterly wind blowing directly in his face. When he arrived at the end of his journey he found that his vision was impaired, and that every thing seemed as if he was looking through a gauze veil. There was no headache, no symptom of indigestion, to account for this evidently slight degree of amaurosis, and yet he was recommended to use cupping to the nape of the neck and strong purgatives. When he consulted me, which he did in the course of a few days afterwards, I at once saw that there was something unusual in the case, and after a careful examination, I at length elicited from him the fact of his having been exposed to the influence of the cold wind. It was now apparent that the retina suffered in consequence of an impression made on the facial branches of the fifth pair. The cure was effected, not by a treatment directed to relieve cerebral congestion, but by stimulation of the skin of the face, forehead, temples, &c.

It is, however, unnecessary to multiply examples to prove the truth of the proposition, that disease may commence in one portion of the nervous extremities, and be propagated towards the centre, and hence, by a reflex action, to other and distant parts. Bearing this in mind, we can explain why it is that disease commencing in one part of the system may produce morbid action in another and distinct part, and it certainly appears strange, that with so many striking examples before them, pathologists should have so long overlooked this cause, when seeking to explain the nature of many forms of paralysis. If certain irritations of the nervous extremities in one part of the body are capable of giving rise to a derangement in the whole system of voluntary muscles; if a local affection may become the cause of exalting and rendering irregular the functions of every muscle in the body; then, surely, it is not difficult to conceive that a cause, local as the former, and tending not to exalt but to depress the motor function of the muscles, may likewise affect not merely the nerves and muscles of the part, but also those of the whole body or of distant organs, giving rise to paralysis. Now,

pathologists have long recognised the fact, that general muscular excitement and spasm may arise from the operation of a local irritation. A man gets a contused wound on his thumb or one of his fingers, and some superficial nerves are injured. In the course of a few days he begins to feel a degree of stiffness about the lower jaw and muscles of the neck, accompanied by a sense of constriction about the diaphragm. This increases gradually, all the voluntary muscles are thrown into a state of fixed spasm, and he gets tetanus. Here a few trifling branches of the digital nerves are injured, the morbid action is conveyed from them along the nerves of the arm to the spinal cord and brain, and is thence, by a reflex action, propagated all over the body. A wound of the finger causes a morbid action in its nerves, and it has been acknowledged by pathologists that this, by acting on the brain and spinal cord, may give rise to a general morbid action of the muscular system. This being the case, there is nothing improbable in supposing that a cause affecting any portion of the branches of the nervous tree, and which produces effects of a paralytic nature, may likewise re-act backwards towards the nervous centres, and thence, by a reflex progress, may extend its influence to distant parts of the circumference.

To give another instance: how often do we see irritation, commencing in the intestinal mucous membrane, propagated backwards towards the brain? Take the familiar example of intestinal worms. A child labours under worms;—here the irritation of the digestive mucous surface whether it be produced by the worms or by the indigestion which accompanies them, is propagated from the stomach and bowels to the brain, and thence reflected to the voluntary muscles, causing general convulsions.

Dr. William Stokes details the following case in his lectures. "A young woman was admitted into one of the surgical wards of the Meath Hospital, for some injury of a trivial nature. While in the hospital she got feverish symptoms, which were treated with purgatives consisting of calomel, jalap, and the *black bottle*, a remedy which deserves the name of coffin bottle perhaps better than the pectoral mixture so liberally dealt out in our dispensaries as a cure for all cases of pulmonary disease. She was violently purged, the symptoms of fever subsided, and she was discharged. A few days afterwards her mother applied to have her re-admitted, and she was brought in again, and placed in one of the medical wards. Her state on admission was as follows:—She had fever, pain in the head, violent contractions in the fingers, and alternate contraction and extension of the wrist and fore arm. These muscular spasms were so great, that the strongest man could scarcely control the motions of the left fore-arm. In addition to these symptoms, she had slight thirst, some diarrhœa, but no abdominal tenderness. On this occasion a double plan of treatment was pursued, the therapeutic means being directed to the head, in consequence of the marked symptoms of local disease of the brain, and to the belly, from the circumstance of abdominal derangement observed in this and her former illness. She died shortly afterwards, with violent spasms of the head and fore-arm; and as she had presented all the ordinary symptoms of a local inflammation of the opposite side of the brain, we naturally looked there first for the seat of disease. After a careful examination, however, no perceptible trace of disease could be found in the substance of the brain, which appeared all throughout remarkably healthy. She had all the symptoms which, according to Serres and Foville, would indicate disease of the optic thalamus or posterior lobe of the opposite side, yet we could not find any lesion whatever of its substance, after the most careful examination. But on opening the abdomen we found evident marks of disease; *the lower third of the ileum, for the length of six or eight inches, was one unbroken sheet of recent ulcerations.*" This case, gentlemen, you will perceive just now, bears very strongly on the subject paraplegia arising from enteritis.

Again, how often do we see convulsions brought on in the same way by cutaneous irritation? A child gets an attack of fever, accompanied by general irritability and restlessness. During the course of the disease, the lungs become affected, and the medical attendant applies a large blister, which is left on for several hours. Next day the symptoms of nervous irritation become more violent; the child is perfectly restless, or, if it doses for a moment, awakes screaming, and is finally attacked with general convulsions. Many other examples could be brought to support this view of the question, and prove that morbidly

increased action of the whole muscular system may be excited by a cause acting merely on some insulated portion of the nervous extremities.

I think, therefore, that I am borne out by analogies strikingly exhibited by numberless examples, in asserting that the circumference of the nervous system has been too much neglected by pathologists, in their explanations of the nature and causes of paralytic affections. I could give many instances of pains commencing in particular parts of the body, and travelling back towards the spine, so as to give rise to an affection of that organ, which has been too generally looked upon as the result of idiopathic disease. How often does this happen in hysteria? How often does it happen that the organ principally engaged in hysterical cases becomes, during the attacks, acutely painful, and that, as the disease proceeds, the pain travels back towards the spine, until at length the spinal cord itself becomes affected, and we find acute pain and tenderness over some portion of its track? I am fully persuaded that many modern authors who have ascribed the phenomena of hysteria and other affections to spinal irritation, have been too hasty and indiscriminate in their explanations. In the majority of cases you will find hysteric patients complain at first, not of pain in any part of the spinal cord, but in the right side in the situation of the liver, in the region of the heart or stomach, or in the head or the pelvic region. At this period there is seldom any tenderness over the spinal cord; but, as the disease goes on, the irritation which existed in some of those situations to which I have referred, is extended to the spine, and pain and tenderness are now felt over some of the spinous processes of the vertebræ. When this has taken place, then the spinal irritation thus produced becomes itself a new cause of disease, from which, as a centre, the morbid influence is propagated to other organs. The profession owe much to Teale, Griffin, and other writers, who have pointed out the importance of attending to this spinal tenderness in cases of hysteria, &c. Still, however, like all those who have been employed in investigating a new subject, they have perhaps generalised too hastily, and have, in many cases, regarded this spinal tenderness as a cause, where it should have been merely considered as a consequence.

16. *Strictures on the Numerical Method, as applied to the Pathology of Typhus Fever.*—It is becoming the fashion of the day, to extol in the most extravagant terms, the numerical method—to laud it as the only legitimate system of investigating disease; as having, at last, shed light where all before was darkness; as having substituted certainty for dubiousness—and to claim for its results absolute infallibility. Though not disposed to deny that this method may be sometimes resorted to with advantage, and that in some simple affections, where the elements to be taken into account are few, that the results may be depended upon; we, nevertheless, believe that we venture little in asserting that the bright hopes of the admirers of the method will never be realized. In the great majority of diseases, it is not a single, but many organs which are implicated, rendering the elements to be taken into calculation too numerous to be all grasped—their precise relative value determined, and positive results arrived at. Before this method can be rendered strictly applicable to medicine, there must be invented some new branch of transcendental mathematics, which shall consider an immense number of elements of varying value, and furnish positive results from uncertain quantities. We do not wish to decry the numerical method, but to fix its true value, and thus preserve the student from disappointment, who shall expect to obtain from it the important and positive results which its admirers promise him.

The following remarks on this method, as applied to typhus fever, by Professor Broussais, extracted from his course of lectures on general pathology and therapeutics, strike us as containing much good sense, and we invite attention to them.

"In order to establish this dothinentery, a numerical method has been had recourse to, which I shall proceed to examine, without reference to individuals. This method is borrowed from authors of statistics, and the attempt made to apply it to medical questions. So great is the imitative tendency in man, that no sooner does a new idea uprise than people hasten to make essay of it, and multiply its applications. Persons that do not think profoundly, at first imagine they have discovered the philosopher's stone: better sense, however, in time again takes precedence, and the method is appreciated. The method that we are now speaking of is in itself good, but the proper use of it should be known; for, ill applied, it becomes

valueless, or even hurtful: it may easily deceive inattentive persons: it requires particular organic dispositions for calculation that do not exist in all men, as phrenological observations prove; those who have not such dispositions, and to whom calculations are irksome, hasten to the result. So much for medical questions. In statistical questions greater rigour has been used, and more positive results arrived at; the method has been found excellent for determining the averages of births and deaths, for showing whether one disease is more or less fatal than another, &c.: these are simple questions, to which calculation is readily applicable. But suppose that instead of one element the question has ten; the application of the method should be ten times made—if twenty, twenty times —otherwise the result will be illusory. And observe, first of all, that this result, as obtained by the arithmetical physicians, does not include the causes of diseases, numerous as they are, containing as they do pathological elements as important as the symptoms and anatomical lesions, and each of them requiring a particular calculation.

Yet this method has always been employed, and by it I too have proceeded— only, there are two ways of using it, without figures, and with figures. In the former, a certain number of facts, stored in the memory, are compared, and the consequences deduced without laying stress on the calculations; this is the manner in which all founders of systems have proceeded. Look at Sydenham and the classical writers of the last century; they give you the result of the comparison of a great number of facts without using figures, and tell you that such a cause produces more diseases than such other, that such a symptom is most frequently observed, such treatment most frequently the best, &c. This mode of proceeding has been adopted by all the men who have given an impulse to science. Then came the calculators. The figure ought to have confirmed what genius had discovered; for, I opine, it is generally genius, and not the figure that makes the discovery. Men endowed with the power of perceiving relations are led on by the abundance of facts, and arrive at deductions previous to having employed the slow method of calculation; yet they may be deceived, and it is necessary that these men who advance the sciences, and appear from time to time in the course of ages, should be subjected to the criticism of calculators. If they fall before it, they are spurious geniuses. But to be judges of them, certain rules should be followed—the judges themselves should possess some genius, above all, integrity, and should apply their calculation to all the elements of the question. Pass we to the application that has been made of this method to gastro-enteritis, and let us see what it has produced. It has led to the proposition, that the symptoms of typhus or dothinentery are the consequences of the affection of the intestinal follicles. Mark, of their *affection;* they first said of their *inflammation,* but became afraid of having advanced too far, and therefore afterwards confined themselves to the former term. This affection has been regarded as a specific eruptive disease, of doubtful nature, having a necessary and fatal duration, like small-pox pustules, and a progress that cannot be changed. Now, how has the numerical method arrived at this result?

It has arrived at it by multiplying observations ten, twenty, thirty, eighty times, if necessary, on a class of subjects attacked with dothinentery: but experience proves that another class with other phlegmasiæ may also have the follicles affected.

It has arrived at it by calculating from a species of treatment that is always the same: but I can positively assert that another kind of treatment would have given another result, and that the progress which they have presented as of necessity would have been changed by this treatment; you see what applications of calculation should have been by right made to answer this single objection.

It has arrived at it by giving no account of the regimen followed by the patients: but another regimen, like another treatment, would not have produced a similar number of autopsies, nor similar alterations.

It has arrived at it by keeping out of view the mode of action of external causes, or by making them vague:—whereas I maintain that a good interpretation of those causes would have thrown light on the question, and showed the part that irritation plays in this disease, but this part has not been given, and they have even abstained from using the word irritation.

It has arrived at it by making no account of anterior irritations—a question of

the very first importance to men exposed to the influences that induce the disease, among whom were some already in a latent state of phlegmasia. In fact a number of individuals are always to be found in society whose habits, mode of life, regimen, griefs, misery, or excesses, have rendered feeble and valetudinarian, and who go on living with points of latent phlegmasia. These individuals may be said to be victims already devoted; whenever epidemics arrive, they are the first to be carried off; and when you hear of deaths occurring in the space of twelve to twenty-four hours, you may be certain it is they that have been seized. The numerical doctrine neglects this important datum, which would materially modify its results, as would the ages, sexes, external causes, regimen, and treatment.

It has arrived at this result by getting rid of all the lesions of typhus other than the affection of the follicles, in order to find that alone invariably. This is false *par excellence;* for, in the first place, the cerebral phenomena are at least as constant: by them the patient dies, and I cannot see why the preference was not given to them; in the next place, these phenomena exist in cases of gastro-enteritis, where we find no altered follicles after death, as well as in those where such are found. It is, therefore, false that this alteration of the follicles is the generative organic phenomenon of adynamia and ataxia.

It has arrived at this result by affirming that the intestinal follicles are not diseased in many acute and chronic affections other than dothinentery, in which however they are affected as well as in what is called dothinentery. In fact, very many individuals who have not exhibited the collection of symptoms to which this new name has been assigned, who have had eruptive phlegmasiæ or peripneumonies, with anterior or simultaneous irritation of these follicles, have presented them in a state of alteration similar to that of dothinentery. Here, then, is another false observation.

It has arrived at this result by making use of cases where redness had disappeared either in the stomach or the intestines, in order to bring the inflammatory nature of the disease into doubt. Herein it has given proof of great ignorance: it has shown its ignorance of the displacements of inflammation, and of the fact that the stomach, after being disorganized, may be rendered pale by the fluids that pass through it. It has said that inflammation is a secondary and accidental thing, inasmuch as redness is not always met with; that softening was inflammatory when this redness accompanied it, and non-inflammatory when 't did not, &c. Pitiful reasons! these are only circumstances of the stage, and the predominance of the inflammation; if this predominance takes place in the lungs or the intestines towards the close of the disease; the small degree of redness that existed in the stomach disappears; for the patient must drink, and the fluid he drinks carries off the sanguineous molecules of the stomach—they never thought of this simple explanation; if, on the contrary, this predominance has been maintained in the stomach, if the patient has been stimulated, if the inflammation has lasted longer, the stomach exhibits more redness or density around the softening. All these circumstances should have been carefully calculated by the partizans of the numerical method—since they love calculation, here is food for them. One might say to them, "apply your method to the different durations of the diseases, to the cases in which the patients have been thirsty, to those where they have drank water, to those where they drank something else, &c. &c.; here is matter enough for volumes; we place you on your own ground, but you must calculate every thing." It is proved that softening of the stomach depends on inflammation, and the numeric doctrine only denies this fact, because it knows not the reason why that organ loses or preserves its redness. So, also, of that of the intestines.

The numerical doctrine arrives at the conclusion that the follicles are not diseased by inflammation, by not stating the truth as to the actual condition of the organs; for, it must be told, it has frequently dared to affirm the absence of inflammation in the mucous membrane, when it was evident there. Moreover, it has not comprehended that to die after a long continued inflammation that has exhausted the powers and decolorized the blood, is to die by inflammation. By a kind of vicious circle, and striking want of good faith, it decides that we ought to find in an individual who has languished and slowly wasted away, the same redness as in one who has sunk at the onset of an inflammation.

The numerical doctrine has considered as accessory and inconstant lesions, those of every other viscera than the digestive canal, and has been content to say, that they sometimes exist, and sometimes they do not, without giving any reason for their existence or non-existence: yet this is a point, the solution of which was fundamental in the construction of the entity, for the first question that you put to yourself is the wherefore of these alterations and their inconstancy. Instead of answering this question, it has examined the state of the organs in different acute diseases, and has entered into a cool calculation, by which conclusions have been arrived at, all of which are most susceptible to attack. Thus, as they, the calculators, almost always found a phlegmasia of the stomach in peripneumony, they conclude that gastritis is not an exclusive phenomenon of typhus—as if any physiological physician had ever maintained the contrary. All that we have said is, that inflammation of one organ may induce that of another, and that this phenomenon is complicated in all manners, and is unceasingly tending to propagation. No doubt, in the majority of peripneumonies, there is congestion of the stomach, but as soon as I have combatted the pulmonary inflammation, the gastric congestion disappears; and if, in order to resolve the former, I think it advisable to cause revulsion to the stomach—by tartar emetic for instance—I do so. Prove to me that arsenic is the better remedy in such a case, and I will give it, for I am of no party nor coterie, and I admit all means that are sanctioned by experience. This congestion of the stomach may proceed to an inflammation which will not yield to the treatment best adapted to peripneumony, but requires a specific one to itself. I am in the habit of daily combatting similar inflammations. But wherefore conclude from this fact, that gastritis is not a symptom of typhus? What is the meaning of this two-horned reasoning? Gastritis may complicate all possible inflammations, and become so predominant as to cause death.

There may also be an enteritis; with predominating pulmonary phlegmasia; the consequence is the same—one must be treated by treating the other, or each of them separately; and we are not to conclude that enteritis does not constitute typhus, because we meet it in company with peripneumony.

There may also be peripneumony with predominating gastritis: here, the answer is the same. The manner in which we study irritation, shields us from the absurd conclusions that are drawn from these coincidences and dependencies which inflammations have with regard to each other. You will one day laugh at the serious air with which some people treat the ridiculous questions that originate in these circumstances; you will not comprehend how it was possible for them not to attain the truths which I laid down at the commencement of this course, on the subject of inflammation in general. You did not, perhaps, then know what I was driving at—you see it now. You must study that phenomenon, and not an entity wherein there is only one particular thing, and wherein whatever is not that particular thing, is accessory and independent.

Another consequence of these calculations and comparisons, has been the assertion that the follicular patches of the intestines are to be regarded as the leading phenomenon or peculiar characteristic of typhus. But these are met with in other diseases than typhus; in small-pox, measles, peripneumony—in any disease. These patches were found in cholera, and some one announced it to me as a great novelty; but I knew it before-hand, although I had never seen it. Had we not been told that cholera principally attacks intemperate men, and such as labour under gastro intestinal irritations? This was enough for me to know. All these questions run into each other; one solved, there is ground taken up for solving the others, provided people know how to compare and draw conclusions. "The patches," say they to us, "did not then exist, or were indistinct." A greater number of cases in which they did not exist at all might be found; but as they were moved by the interest of faction, they have put these aside as not smiling on the system they uphold. You may observe that it is not with these calculators as with physiological physicians, to whom all facts are good, and who hold by their method alone. Present a new or extraordinary fact to the latter, and they will tell you how it ought to be studied, to what organ it ought to be referred, with what vital act it is allied. With them the most empirical practice is equally interesting with the most rational; they reject nothing, and it is unjust to attribute the slightest exclusiveness or partiality to them.

The numerical method entertaining the quixotic aim of proving that in typhus

or dothinentery the affection of the follicles is every thing, and the rest nothing, considers itself bound to maintain that diarrhœa is not owing to an affection of the great intestine; indeed, it is forced to do so, for as the physiological physicians had proved that the diarrhœa is owing to the descent of the irritation below the ileo-cœcal valve, and as there is diarrhœa in dothinentery, had that proposition been allowed to remain untouched, its entity would have been trenched upon, and the colon must have been considered as the seat, and its inflammation as the cause. It therefore determined to attribute the diarrhœa to the small intestine; many people, it says, who had this affection, exhibited scarcely any redness of the great intestine: this slight alteration is insufficient to produce diarrhœa. Moreover, it adds, on calculation I observe that in the cases where it is met with, the affection of the follicles has been more frequently evident than it; therefore, it is on this affection that the diarhœa depends. Now, this conclusion is still the result of the same mode of procedure, which consists in keeping account of the state of all the organs in patients that die in typhus, and saying that the variable or the least marked lesions do not essentially belong to it, and cannot be characteristics of it. For the rest, this mode of procedure affords no notion as to the causes of these lesions, and is reducible to the assertion, that sometimes it is the entity, and at other times something else, that produce them; which is in fact, speaking, yet saying nothing. It is not remarked that every predominant lesion may be accompanied, in an accessory shape, by all manner of secondary lesions, (since inflammation proceeds in all kinds of ways), and that what is advanced about the cadaveric lesions of other organs than the digestive canal compared to those of that canal, may be advanced in the contrary sense, about the lesions of the canal as compared with those of other organs. Lest this should not be clear to you, I will proceed to make it so.

Referring to generalities, let us suppose that there is a phlegmasia of an organ; if it is not arrested other organs become inflamed: this is a fact, and cannot be made into an entity. Let it be a gastritis: if you stay it before there has been any communication, it will have been simply a gastritis; but if you allow it to go on, it may become complicated in various ways: cold acting on the lungs, you will have catarrh or peripneumony: the digestive canal being perforated, you will have peritonitis: mental affections coming into play, you will have cerebral irritation, &c. Let it be pneumonia: there may be secondarily a gastritis, or pleurisy, or cardio-arteritis, or rheumatism; and each of these diseases may in turn predominate and become the primum mobile of the pathological phenomena and anatomical alterations.

Would you go and take them all one after the other as the centre of an entity, and say, in such an affection we found the stomach so many times inflamed; so many times thinned; the spleen so many times swelled, so many times softened; the lungs so often hepatised, or gorged, or crepitant, or tubercular, &c.? This sterile enumeration would neither show you the causes nor the connexion of all these phenomena, and would lead you to the reconstruction of the ancient entities, and to all the trash of the old ontology. How much more simple is our method, when we say that the causes should be studied, the effects followed up, that no disease has an invariable course, that inflammation extends if not arrested, that it changes posture, &c.

The numerical method has attributed a host of secondary lesions to fever, and has regarded the affection of the follicles as the only anterior lesion. But what can it understand by fever, when they attribute to it sore throats, pulmonary or cerebral congestions, cystites, gastrites, enterites, &c.? Is fever the acceleration of the blood's circulation? but this alone could not produce so many diseases: you daily accelerate the circulation by walking, by stimnlants, by violent movements, without inflammation ensuing. Is it the collection of symptoms or organic lesions of dothinentery, as indeed they say it is, in answer to the question, "what is fever?" at the same time that they enumerate both, in order to give an idea of fever? But on the one hand fever is a symptom, and I wish to know how a symptom can produce so many functional and organic lesions as are admitted in dothinentery; and, on the other hand, if fever is only a collection of lesions, I wish to know what produced those lesions. What can be said in reply, except that it is inflammation?

The numerical method pretends to determine the medium duration of diseases,

and of dothinentery in particular. But what certainty is there in the duration assigned to them, unless you take account of the causes, the varieties of symptoms, ages, temperaments, predispositions, treatments, &c.? Apply, therefore, your calculation to all the circumstances and all the divisions and subdivisions of each of them; apply it to patients that have been treated in a certain manner, to those treated in a certain other manner, to those that have been purged, to those that have been bled, &c. Here is calculation enough: deal thus with all diseases, and you may make myriads of volumes, and God knows when you will finish. The numerical method is a good one, but people should know how to make use of it.

The numerical method attempts to find the essential symptoms by expunging those that are not met with in the majority of cases. It says, such symptoms are met with ten times, such others six times, others five times, and such others were altogether wanting: therefore these are necessary and essential, and those are only secondary, and make no part of the disease. It has created factitious entities, and has lost itself in a frightful waste; and had it treated diseases otherwise than it did, results very different from those arrived at would have been obtained. And what have all these proceedings proved? that there is a host of circumstances to which its calculations have not been and never can be applied: that the succession of symptoms established by it is not, as asserted, constant: that the alteration which is given as fundamental is no longer so: that dothinentery has not an invariable course, and that, in that form, is nothing but a factitious entity, an imaginary being.

The numerical method has rejected the name of gastro-enteritis because, according to it, the stomach and intestines are not always inflamed. If it has not always found the stomach inflamed, you know the reasons of it; I have before stated them, and they apply to the intestines also. As to the follicles, which they maintain are always affected, they never are alone inflamed to disorganization, but they may retain the marks of phlegmasia when the mucous membrane has almost entirely lost them, because their organization is more complicated, and they constitute kinds of minute parenchymata. But this is common to all the mucous membranes; the complicated tissues to which they have communicated phlegmasia, or that have it concurrently with them, retain it longer, and often exhibit more profound alterations. For the rest, I have in vain sought for alterations of the follicles, unaccompanied with that of the intestinal mucous membrane, and in this particular I have my suspicions of the veracity of the numerical method. Although it has minutely calculated all the cadaveric phenomena, it has founded the nervous phenomena on nothing, and has left them in a vague. It has not seen that the brain collects the irritations and becomes disorganized with or without traces of sanguineous congestion: it has said that the cerebral symptoms depend on the follicles—which is an absurdity—and that they should be left just as they were found. More than this: it has even laid at the door of the follicles the incipient phenomena of lassitude, headache, vomiting, &c., which indicate that the irritation is commenced in the upper portion, or that, after beginning in the middle or lower portion, it has ascended to the upper. The two latter cases may perhaps be imagined to tally with the assertion, but to say that when the vomiting is at the onset, they depend on an affection of the follicles, is really too much. The following is scarcely less: there being but slight alteration of the great intestine only three times in eighty without any diarrhœa, it has been concluded that such alteration is not requisite to the production of diarrhœa—instead of saying that this alteration was insufficient to produce it. Pain of the belly, it says, was only wanting in nine out of eightyfour times. This tells against the treatment; for this pain may be got rid of easily in three or four days, and if it lasts longer, it is in consequence of bad treatment.

As regards the gastric symptoms, we have seen that it is ignorant of their value, and makes them subordinate sometimes to the follicles and sometimes to the fever; but again I ask, what is fever? how does it produce symptoms, itself being only a symptom? how prove that it is not the effect of a lesion? I have tired out the medical world with refutations of these false ideas, and I can scarcely imagine that there is a head so weak as to produce them.

In the treatment we use nothing but drugs pitted against the symptoms, and an

ignorance in appreciating their effects. It is even said that any medication whatever is indifferent with regard to the progress of the disease—a pitiful falsehood, that proves how entirely the part enacted by irritation has been misunderstood.

But enough of this attempt to do away with gastro-enteritis.—*Translated by Dr. Gulby for L. M. & S. Journ.*

MATERIA MEDICA.

17. *Quassin.*—WINCKLER has succeeded in obtaining the bitter principle of the *quassia amara* in its pure crystalline state. He prepares it by digesting 3 ounces of pulverised quassia wood in 2 lbs. spirit of wine of 80 per cent. evaporating the tincture in a water bath, dissolving the remainder in water, filtering the solution; he then evaporates it in the water bath to the consistence of a thick extract, and treats it with water and spirit of 80 per cent., with small portions of absolute alcohol as long as they take up a bitter taste. The spirituous tincture is then filtered, evaporated in a water bath, the dry residue treated with hot water, when a small quantity of dark brown matter remains. The filtered solution possesses a yellow-wine colour; it should be decolorized by animal charcoal, and evaporated at a gentle heat; the *quassin* separates in fine white prisms. From the watery extract no crystals can be obtained, but merely a yellow-deliquescent mass. Quassin is soluble in water, more so in spirit, very little in ether. By diluting the alcoholic solution the *quassin* is obtained in the form of a woody mass. The aqueous solution is precipitated white by tannin and corrosive sublimate.—*Records of General Science, June* 1836—*from Central blatt, Jan.* 1836.

18. *Chinese Rhubarb.*—For the discovery of the true plant which supplies this drug, (usually called Indian), the Russian government have for several years offered a reward of 30,000 roubles. M. PARAVEY, among some Chinese works which he has examined at Paris, found two figures of the plant with violet and white flowers, shewing that the source of this medicine is not confined to the *Rheum palmatum* and *R. Undulatum.*—*Ib., from L'Institut.*

19. *Rapid mode of preparing Mercurial Ointment.*—According to VAN MONS mercury can be rapidly killed by adding some drops of *Balsamum sulphuris terebinthinatum.*—*Ib., from Buchner's Reptorium.*

20. *Extract and Tincture of Rhubarb and Extract of Gentian.*—It is difficult to clarify the aqueous extract of rhubarb. GEISELER recommends digesting the entire root of the rhubarb with water, and setting it aside in a close vessel exposed to the action of the steam. The extractive parts dissolve completely, the solution becomes clear, and the root consists only of fibres. The specific gravity of the preparation thus obtained is 2.048, and a pound of *Rheum muscovit.* gives 8½ ounces of a soluble extract of the consistence of pills. In the same way he has prepared extract of gentian. Six pounds of *Rad. gentian.* gave four pounds of a dark-yellow soluble extract.—*Ib., from Central blatt, Feb.* 1836.

21. *Infusion of Rhubarb.*—The roots cut down are to be placed in the carbonate of potash, in the requisite quantity of cold distilled water. The vessel should then be introduced into a steam apparatus, and allowed to digest at the temperature of 189½°. It should then be filtered, and after the addition of cinnamon water, placed in a cool situation. This infusion contains very little starch, and will keep longer than when prepared with boiling water.—*Ib.*

22. *On the Influence of Temperature upon the Developement of the Volatile Oil of Mustard.*—It has hitherto been supposed, that the volatile oil, on which the stimulating properties of the powdered mustard seed depend, was more abundantly developed by hot water than cold; and many treatises on Materia Medica, recommend, from the observations of Thibierge, (*Journ. de Pharm.* v. 447.) the powdered mustard to be mixed with boiling water for the preparation of sinapisms and pediluviæ, and to wait afterwards for the mixture to cool sufficienty for

use. M. G. Faurē, sen. has proved this to be an error, by a number of experiments; and has shown that water heated to 70 R. (150 Fahr.) and upwards prevents the developement of the volatile principle of mustard.* It hence results that in the preparation of sinapisms, to render them as active as possible, the powder of mustard seeds should be made into a paste with cold water, and for pediluviæ that it should be mixed with cold water and then be raised to a proper temperature by the addition of warm water.

M. Fauré infers from his experiments, that the albumen contained in the powdered mustard is one of the principal constituents of the volatile oil, that cold water developes it or at least is indispensable to its formation; and that whenever this albumen is rendered insoluble by coagulation or denaturalization by any cause this oil will not be formed. The substances which produce this last effect are caloric above 75 R., alcohol, concentrated acids, caustic alkalies, mineral salts, chlorine, &c.—*Journ. de Pharm. Sept.* 1835.

———

23. *Tincture of Copaiba.*—A correspondent of the *London Med. Gaz.* describes the following as "the least nauseous and most available form for administering the balsam of copaiba:—take twelve ounces of copaiba and six of calcined magnesia, rub together, and then digest in a pint of proof spirit; filter, and add half an ounce of the spirit of nitrous ether. Of this a drachm two or three times a-day, gradually increased to half an ounce at a time, will prove a sufficient dose. The tincture when first made is transparent and colourless, but assumes an orange tint on keeping."

———

24. *Observations on the Seeds of the Jatropa Curcas.*—Dr. Sigmond, in making to the Medico-Botanical Society some observations on these seeds, said, that although the seeds of the *Jatropha curcas* have been sent to us before, this is the first opportunity we have had of seeing them in their capsules; and on comparing them with those which through the kindness of Mr. Battley, are laid before us, exactly as they are found in commerce, you will observe that they correspond in external appearance, and that they are essentially different from the seeds of the *Croton tiglium,* which are also before you. The character of the fruit is fully evident—it is about the shape and size of a young walnut, it is of a yellowish colour; these are concealed under a bark, which is smooth, leathery, and strong; there are three seeds invested in two coats; they are oval oblong. The external coat is brittle, crustaceous, and blackish. These seeds, when ripe and fresh, are to be slightly roasted, and infused in spiced wine, when they act, if taken in number not more than two or three, as gentle evacuants of the bowels, producing neither nausea nor any griping; in larger quantities they are emetic and purgative, and if in still larger quantities, are active poisons. The expressed oil which is obtained from them acts in a similar way, and three or four drops, added to castor oil, increases its purgative qualities, or the same quantity may be taken in mucilage of gum arabic, with good effect. The expressed oil has likewise been used with very excellent results externally, in the cure of the itch, in various herpetic eruptions, and it has likewise been recommended in chronic rheumatism. The effect, when taken internally, is very quickly produced; large copious alvine evacuations very speedily following upon it, sometimes within half an hour, besides which, the secretion of urine is considerably augmented. In apoplexy, in obstinate constipation in dropsy, it appears to be of great importance. The following experiments, detailed by Orfila, prove that the seeds possess highly poisonous properties, that they act more strongly when introduced into the stomach, than when applied to the cellular tissue, and that the effects depend upon the violent inflammation they produce, and on the sympathetic action on the nervous system:—

Experiment 1.—At eight in the morning, three drachms of this seed, deprived of its ligneous covering, and reduced to a paste, were introduced into the stomach of a robust dog, of middle size, and the œsophagus was tied. At a quarter before nine, the animal began to make efforts to vomit. At nine he uttered some plaintive cries. At ten he could no longer walk; he remained lying on the side, in a state of great insensibility. He died an hour after. He was opened at two o'clock. The whole of the digestive canal was red on its external surface; the

———

* The same fact has been simultaneously discovered in Germany, by MM. Geiger and Hesse.

mucous membrane of the stomach was of a deep cherry-red throughout its whole extent; the interior of the rectum was of a fiery-red; the lungs were crepitant, and of a reddish colour; the ventricles of the heart contained black fluid blood.

Experiment 2.—At eight in the morning this experiment was repeated with a drachm of the same paste. The animal only felt during the day inclinations to vomit. At ten in the evening, he was insensible, could no longer stand, and made deep inspirations. He died in the night. The digestive canal was very much inflamed in the interior and exterior; the coats of the great intestines presented throughout their whole thickness, a colour which appeared black; in separating them from one another, it was perceived that this colour was an extremely deep red; there was no eschar. The lungs presented several livid patches, dense, and distended with blood.

Experiment 3.—Another animal, that had taken a drachm and a half of the same paste, died at the end of ten hours, and the same symptoms and appearances on dissection were observed.

Experiment 4.—At eight in the morning a drachm of the same paste, mixed with two drachms of water, was applied to the cellular texture of the thigh of a dog. The animal experienced no remarkable phenomenon during the day. The next at noon, he was lying on the side; his breathing was difficult and profound. He was placed on his feet, and fell down like a lifeless mass; his limbs, far from being stiff, were extremely relaxed; the organs of sense no longer performed their functions. He died two hours after. The digestive canal was sound; the lungs presented livid, dense patches, distended with blood; the limb operated on was very much inflamed; the redness extended to the fifth sternal rib. There was no eschar.

The seeds of the *Jatropha curcas* are a subject of much interest to us; they have been thought by Caventou to yield the oil which is generally called croton oil; and he has made some experiments which he thinks proves that the oil obtained from the pignons of India, as they have been called, differs in no respect from the croton oil procured directly from London. This, however, is erroneous; although the medicinal action is nearly the same, yet there is a great difference in the colour, odour, flavour, and general appearance of the oils that are obtained from the seeds of these two plants. The *Jatropha curcas* or angular leaved physic nut is exclusively a native of South America; but the negroes everywhere employ it largely for medicinal purposes. It belongs to the natural order Euphorbiaceæ, which as you are aware embraces a number of families, various species of which contain seeds that are drastic purgatives, and which have acrid properties. Amongst these the seeds of the *Croton tiglium*, the *Jatropha curcas*, and the *Ricinus communis*, bear a striking resemblance in therapeutic energy to one another. The order derives its name from a plant which has some curious historical recollections interesting to the botanist. Pliny tells us that there were two celebrated physicians, brothers: Antonius Musca, and Euphorbus. The first restored to health Augustus Cæsar, when labouring under diseased liver, by cold applications externally, and the use of the jactuca internally. For this cure, Augustus erected a statue to Antonius Musca. The other brother, Euphorbus, was, at the same time, physician to King Juba, who determining to reward him for a similar service, consecrated to him the Euphorbium, which still bears his name.

The *Jatropha curcas* has been reared at the Royal Gardens at Kew, and in the Hortus Kewensis you will find eight species of the *Jatropha* enumerated. The best engraving is in the work of Jacquin—in which the seeds and their capsule are very well delineated, leaving no doubt in the mind of their difference from those of the *Croton tiglium*, and the identity of those which are now before you. Of the analysis of the *Jatropha curcas*, made by Messrs. Pelletier and Caventou, I know not how to speak, as it certainly appears to me they allude to the oil of croton; and as the mode of its preparation in India is not known, whether obtained by expression or boiling, it has been imagined that the seeds of both plants are employed; and this may account for the variation of strength so constantly complained of by those who have made experiments with croton oil, in some cases a single drop having produced hypercatharsis, whilst ten drops of other samples have been given without effect.—*London Med. & Surg. Journal, March* 5, 1836.

42*

25. *Aceto-Spirituous Tincture of Cantharides.*—D. S. Young, Esq. gives in the 7th vol. of the *Transactions of the Medical and Physical Society of Calcutta,* the following formula for the preparation of an aceto-spirituous tincture of canthari-des. Take of concentrated acetic acid, nine ounces; rectified spirits, three ounces; Spanish flies, four ounces. The Spanish flies to be coarsely powdered and put into a wide-mouth glass-stopper bottle, when the acetic acid and rectified spirits are to be added. Let the whole digest for five days exposed to the sun, be then strained through flannel, and kept for use. The quantity will be about eight ounces.

Mr. Young extols this preparation as a substitute for the emplastrum lyttæ. He states that when it is rubbed upon any part of the body for about three mi-nutes or until a pricking sensation is felt, that in two or three hours afterwards complete vesication will be produced. Mr. Young claims for it the advantage of the E. lyttæ of not occasioning strangury, but being more prompt in its operation and being more conveniently applied in certain situations.

The late distinguished Wm. Twining, Esq. and D. Stewart, Esq. confirm Mr. Young's statement. The former says that he employed the preparation in six-teen cases, and that it has invariably acted as a rubefacient, if quickly brushed over the skin; and when the skin was freely wetted with it, and rubbed for the space of three minutes, a perfect vesication is formed in two or three hours. "The blister," he adds, "has been in all cases more complete, and contained more serum than that produced by the emp. lyttæ. The remedy can be more exactly confined to the part which we desire to affect, and the margin of the vesication is well defined; the whole of the cuticle is more generally removed than by the common blistering plaster; and a more prompt and more free suppuration usually takes place." The pain from the application of this preparation, he states to be more severe, but more transient than that produced by the blistering ointment.

THERAPEUTICS.

26. *On the simple Antiphlogistic Method of treating Syphilis.* By M. Devergie, senior, Chief Surgeon of Gros-Caillou.—I have shown in my *Clinical Report of the Syphilitic Disease,* that various French and foreign physicians, between 1548 and 1833, treated venereal complaints without mercury, by strict regimen and other simple and rational measures. I propose to mention here the results which I have obtained from the year 1819 to the 1st of Sept. 1835.

I should mention that I had occasion, in my service in the army, to treat nume-rous cases between 1804 and 1815. Though educated in the belief of a specific *virus,* so generally received at the period of my studies, finding every where in Ger-many, where I was constantly stationed from 1806 to 1813, the same doctrine confidently avowed and put in practice, a little time and reflection satisfied me, that all the frightful evils which I had incessantly before my eyes were the effect rather of unseasonable treatment than of the disease itself.

During ten years that I was living with the same men, the division of Cuiras-siers of General Nansouty, with whose habits, mode of life, temperance or excess, I was well acquainted, I ascertained that the primary symptoms, especially chan-cres, were often cured, without relapse, by attention to cleanliness, aided by so-briety and by the powers of nature, in certain soldiers who concealed their com-plaints, while, on the other hand, their comrades, more obedient to medical pre-scriptions, did not always escape consecutive symptoms by methodical treatment. These facts were not lost on me. Since 1808, but especially since 1818, I obtain-ed rapid and certain cures in the treatment of secondary symptoms, either by sudorifics, conjoined with strict regimen, or by the latter means alone, in patients who had sufficient resolution and inclination to confine themselves to a scanty vegetable diet.

When at the close of 1814, I became attached as senior surgeon to the Val de Grace, I was very desirous to make trials for arriving at the same result in the cure of recent venereal symptoms, by rejecting the employment of mercurial re-medies. The principles explained in the works then published on the subject, and so accordant with the facts observed by myself, were assurances that I should

succeed. But more than one obstacle prevented me from making conveniently in the treatment of the venereal cases, the trials for which I was so anxious. Here as every where else, mercury under three forms, ointment, liquor, and pills formed in general the treatment of the primary affections. Physicians and patients showed themselves equally persuaded that this metal was the only remedy against their distempers. To propose publicly a reform would have been equivalent to provoking an anathema against me. I was therefore obliged to proceed with reserve.

Nevertheless, from 1819 to the month of April, 1835, when I quitted the division of the venereal cases, aided by most of the pupils, I had several opportunities of introducing freely in the treatment of this class of patients, the improvements suggested by experience and reasoning. Those who already victims of the effects of mercury, refused to take more, when symptoms recently contracted brought them again to the hospital, fell naturally under my care. As to those who believed that mercury was the true specific, I began mercurial frictions in small doses, one drachm every two or three days, after the acute stage was over. Already sparingly nutritive regimen, local blood-lettings, and rest had effected an important modification. Time passed; the cure advanced; and *seven or eight drachms* of mercurial ointment were sufficient to put these soldiers in a condition to quit the hospital after an abode of *thirty or thirty-five days.* Those, on the contrary, who were subjected to the ordinary mercurial treatment, used from *four to five ounces* of ointment, without counting the pills of Belloste (Ratier's Formulary, p. 123;) taken in the interval between the frictions, and left the hospital only after fifty-five or sixty days. When the patients suffered themselves to be guided without anxiety as to the mode of treatment, I suppressed altogether the mercurial preparations; and I arrived, nevertheless, at the same end; that is, of curing the patient more rapidly than by the ordinary method. Instructed by so many observations, agreeing with those afforded by my civil practice, I no longer doubted that *recent syphilis* might also be cured by simple and rational treatment. From this time mercury performed only a secondary part in my practice in the city. I soon renounced it almost entirely, and treated my patients by the antiphlogistic method.

This method furnishes several genuine advantages. 1. I studied the different symptoms presented by syphilis quite uncontaminated by mercurial treatment. 2. I was able to estimate the progress and duration of each of the symptoms, primary or secondary. 3. I could distinguish the symptoms produced by the abuse of mercury or other stimulants, which, by their very energetic action, change, vitiate, or complicate venereal affections so much that they degenerate then into what the English practitioners call *pseudo-syphilis.* 4. I learned that relapses, or the formation of secondary symptoms, much less frequent and less severe after this treatment than after that by mercury. These results are confirmed by the recent writings of modern French and foreign authors.

From January, 1835, to September, 1835, I treated at Paris, in the city, and in hospitals, more than 6000 venereal patients; whom I distinguish into three epochs.

1. Patients treated from 1815 to 1830, in the city and in the Val de Grace, - - - - - - - 1402
2. Patients treated from 15th June, 1831, to 1st September, 1832, in the Val de Grace, - - - - - - - 2000
3. ————————— from the 1st of August, 1833, to the 1st September, 1835, in the Gros Caillou, - - - - 1910
4. ————————— from 1830, to the 1st September, 1835, in the city, about - - - - - - - - 800

This division will show best the difference between the time employed in treatment, especially in the number and severity of the secondary affections, which were more considerable in the first period than in the three others, since the general mercurial treatment was followed with more perseverance.

First epoch, from 1815 to 1830. I treated at the Val de Grace and in the towns, by simple and modified mercurial remedies, 1402 patients. But as the notes relating to 294 are partly mislaid and partly inaccurate, I deduct these, and reckon only 1108, which are distributed in the following manner.

Inflammation of the *urethra, glans, vagina,*   -   -   -   248

<p align="center">*Val de Grace from* 1819 *to* 1825.</p>

Primary symptoms, secondary and consecutive, treated by moderate use of
    mercury,   -   -   -   -   -   -   -   229
Primary symptoms treated without mercury,   -   -   -   90
Secondary symptoms, mercurial and chronic,   -   -   -   118

<p align="center">*Civil practice from* 1819 *to July* 1830.</p>

Primary symptoms,   -   -   -   -   -   306
Consecutive symptoms, mercurial and chronic,   -   -   117

<p align="right">Total,   -   1108</p>

These 1108 venereal cases presented 1428 symptoms and 67 organic complica-
tions.

Mucous system.		Symptoms in 368
Cutaneous,	- -	779
Glandular,	- -	229
Osseous,	- -	36
Fibrous,	- -	16
Organic complications	67	

<p align="center">1428</p>

The 248 urethral, glandular, and vaginal inflammations, were almost all treat-
ed in town. 24 were slight, 137 acute, and 87 complicated with *orchitis, phimosis,
paraphimosis,* adenitis, ophthalmia, visceral irritations, and 21 strictures.

According to the declaration of the patients, these symptoms were contracted
with the following orders of persons.

1st, 61 suspected females; 2nd, 166 unsuspected married women and girls; and
3d, 8 pregnant women. Among the 166 unsuspected married women and girls,
112 had menorrhoea more or less copious, and 54 were menstruating.

Of the simple, complicated, or phagedenic ulcers, and the simple or double
buboes, 172 were cured by modified mercurial treatment, and 321 by simple
treatment.

The mean duration of treatment cannot be precisely specified, since most of
the patients did not confine themselves strictly to the regimen prescribed, and
continued to attend to business. The duration of the treatment was, however,
greatly shortened. It varied from thirty to thirty-five days, often from twenty-
five to thirty days; while, by the ordinary mercurial treatment, either at the hos-
pital or in town, it varied from thirty to sixty days.

The secondary, chronic, and mercurial symptoms, 367, consisted of

1st, 13 chronic ulcerations, phagedenic and cancerous, of the penis, 2 of which
required amputation.

2nd, 14 deep chronic ulcerations of the groin, the consequence of suppuration
buboes.

3d, 8 old ulcerations of the *alæ nasi,* and upper lip.

4th, 54 ulcerations of the tonsillo-palate and pharynx.

5th, 47 ulcerations in the nasal *fossæ,* at the skin, at the anus.

6th, 61 vegetations of the penis, anus, and tongue.

7th, 51 axillary, inguinal, and cervical buboes.

8th, 60 pustular syphilitic eruptions, partial or general.

9th, 39 *periostoses, exostoses,* and osteocopal pains.

10th, 13 cases of caries in the frontal, sternal, nasal, and other bones.

11th, 7 cases of *alopecia,* tubercular eruptions, horny concretions.

Of these cases, 132 were subjected to modified mercurial treatment.

Regimen, strict and unstimulating, observed as exactly as possible by the ma-
jority of the patients, remarkably abridged the duration of the treatment. It
varied in the majority from thirty to fifty days, in some from two to three
months; several months in cases of *caries.* The mean duration of the mercurial
treatment of these symptoms was previously from 85 to 90 or 100 days, and often
still longer; in some cases years.

Second Epoch. From the 15th June, 1831, to the 1st September, 1832, I treated
at the Val de Grace 2000 venereal cases. I give here only the result of the ob-

servations collected from 1380 for two reasons. The first is the epidemic cholera, which required the evacuation of the venereal patients to other military or regimental hospitals, to convert my wards to the use of the fever and cholera patients. The second cause was, that a tedious and severe illness compelled me for more than six months to interrupt my attendance and habitual duties.

These 1380 patients furnished 1824 symptoms reputed syphilitic, exclusive of gastric complications, such as intermittent fevers, attacks of gastritis, enteritis, gastro-enteritis, small-pox, chicken-pox, rheumatic attacks, cephalalgic attacks, jaundice, &c.

The 1824 symptoms are distributed in the following manner.

In the mucous system,	547
In the cutaneous system,	783
In the ganglionar and glandular system,	490
In the osseous system,	1
In the fibrous system,	3
	1824

The 1380 patients may be classified in the following manner.

	Men.	Days.
Inflammation of the *glans* (*balanitis*,) prepuce, (*posthitis*,) and inflammations of both parts (*balano-posthitis*,)	31	17
Simple or acute inflammations of the urethra,	244	26
Chronic urethral inflammation, or those without stricture,	15	45
Urethral inflammations complicated with *phimosis, balanitis, paraphimosis,* or ophthalmia,	12	36
Cases of *paraphimosis*, simple or ulcerated,	19	20
Cases of *paraphimosis* complicated with urethral inflammation, buboes,	6	27
Cases of *paraphimosis* complicated with ulcers or with buboes,	1	120
4. Simple inflamed testicle, *orchitis*,	64	24
5. Ulcers of the *penis*, alone, or multiplied, ,	297	23
———— complicated with buboes,	97	36
———— of the penis, complicated with inflammation of the *glans, phimosis*,	52	47
———————————: complicated with buboes, urethral inflammation, *phlebitis*,	24	42
6. Acute buboes, suppurated, or chronic,	297	33
Acute buboes, complicated with inflammation of the *glans, urethra*, ulcers, &c.	35	40
7. Vegetations on the penis,	12	26
———————————— complicated with urethral inflammation, ulcers, buboes,	27	39
Vegetations at the anus, rhagades and fissures,	49	31
8. Pustules on the scrotum,	6	24
9. Syphilitic eruptions, tetters,	10	33
Syphilitic sores, complicated with ulcers of the penis, preputial inflammation, bubo, vegetations, urethral inflammation,	20	49
10. Amygdalo-pharyngeal ulcerations,	18	27
———————————————, complicated with rhagades and fissures,	6	37
———————————————, complicated with pustules on the scrotum, and urethral inflammation,	3	38
11. Osteocopal pains, periostoses, exostoses,	3	45

The simple dietetic treatment was followed in all, with the subsequent exceptions.

Seventy-one employed the bitter depurative syrup without addition, and the sudorific ptisan.

Six employed the ptisan of Feltz or the water of Pollini.

Ten used mercurial preparations, as the proto-ioduret and the liquor of Van Swieten in minute doses.

Three attacked with buboes or chancres died, two from confluent small-pox, one from gastro-entero-cephalitis.

Third Epoch. From the 1st of August, 1833, to the 1st of September, 1835. At the former date, when I undertook the duty of the first division of venereal cases at the Military Hospital of Gros-Caillou, I pursued the same mode of treatment as at the Val de Grace, with the following results.

1910 patients presented 2276 symptoms, and 244 complications distributed in the following manner.

In the mucous system,	794
In the cutaneous system,	895
In the gangliar and glandular system,	593
In the fibrous system,	6
In the osseous system,	1
Different organic complications,	244

They are classified in the following manner:

	Men.	Days.
1. Inflammation of the glans, prepuce, and of both parts,	26	14
———— complicated with fever, gastritis, &c.	6	32
Simple urethral inflammation,	128	19
Acute urethral inflammation,	224	29
Chronic urethral inflammation, with or without stricture,	107	58
Chronic urethral inflammation, complicated with bubo, amygdalitis, pustules, inflammation of the bladder, of the mouth, fevers, vegetations, phimosis, rheumatism, and erysipelas,	89	57
Urethral inflammation, complicated with acute *orchitis*,	69	34
———— chronic *orchitis*,	36	57
———— double *orchitis*,	5	38
3. Chronic *orchitis*, alone or complicated,	18	44
4. Ulcers on the penis, simple or multiplied,	347	27
———— indurated,	33	52
———— phagedenic,	26	60
Ulcers in the penis, complicated with *adenitis* and gangrene,	1	120
———— with urethral inflammation,	49	35
———— with acute buboes,	76	34
———— with suppurated buboes,	29	67
———— with chronic buboes,	37	59
———— with *phimosis*,	32	58
———— with *orchitis*, inflamed *glans*, vegetations, eruptions, jaundice, *rhagades*, &c.	74	39
5. Buboes suppurated,	92	56
acute,	53	29
indurated,	75	56
scirrhous,	6	67
complicated with rose, *rhagades*, chops, ophthalmies, amygdalitic inflammation, gangrene of the scrotum, fever, &c.	43	69
6. *Paraphimosis*, simple and ulcerated,	14	26
7. Pustules on the *scrotum*,	2	30
8. Vegetations on the penis,	31	32
———— complicated with syphilitic sores, *rhagades*,	4	64
Vegetations at the anus and rhagades, *condylomata*,	45	43
———— complicated with tonsillar inflammation, *gastro-enteritis*, &c.	33	60
9. Ulcerations, nasal, alar, and labial,	2	146
———— amygdalo-pharyngeal,	12	39
———— complicated with gastritis, pustules, and fever,	12	60
10. Syphilitic eruptions, tetters, &c.	23	54
———— complicated with *rhagades*, tonsillar inflammation, strumous affections, urethral inflammation,	13	59
11. *Periostoses*, osteocopal pains, *exostoses*,	6	53
12. Fissures not venereal,	2	30

Seven deaths arose from the following causes.

	Patients.	Days.
Two, typhoid affection and ulcers of the penis,	2	64
Two cases of *gastro-enteritis* with gangrene of the scrotum, and urethral inflammation,	2	132

One case of general arthritis, with ankylosis and caries of the
hip-joint, the consequence of urethral inflammation,   -   1   81

One of sudden death, apoplectic from four scirrhous tubercles in
the brain,   -   -   -   -   -   1   31

One of ileo-lumbar abscess, with *gastrocolitis* and severe pytalism,
the consequence of mercurial treatment par V. Swieten's liquor,
and with frictions in a feeble subject attacked with subfascial
bubo,   -   -   -   -   -   1   71

Seventy-four patients employed the bitter depurative syrup and the sudorific ptisan.

Fourteen patients used the syrup with proto-ioduret of mercury.

Four patients used baths with bichloride of mercury and the depurative syrup.

One patient employed frictions and the syrup without success for large vegetations.

The duration of residence under treatment, compared to that of the second period, is in general longer for all the symptoms. This is ascribed to the following causes.

1. To the dampness of two wards containing eighty beds, which in winter and autumn induced numerous organic complications.

2. To the necessity of the patients, often imperfectly covered, crossing at all seasons a court, exposed to the open air, to the water closets.

3. To many venereal patients being sent by regimental wagons after unsuccessful treatment from twenty-five to thirty-days, during which the symptoms were aggravated.

4. To unauthorized supplies of food which the patients procure by the hospital attendants.

5. To aggravation of the symptoms in seventy-six patients with chancres, and buboes, with pustules, &c. subjected for five weeks to general mercurial treatment by the liquor and frictions, as shown by the journals.

In town I treated about eighty patients affected with various symptoms of syphilis. Though it was impossible to keep correct notes of so many, the following results may be relied on.

1. A number of acute urethral inflammations, gonorrhœa, about 350.

2. Many cases of chronic urethral inflammation, maintained by indurations and stricture, on one or more points of the urethra, the consequence of astringent injections; all treated with cauterization, alternated with dilatation, and latterly by forcible catheterism after the method of M. Mayer, 110.

3. Ulcers of the penis, one or manifold, cases of *phimosis*, of buboes, about 100.

4. Consecutive symptoms, such as ulcerations of the nose, tonsils, and pharynx, syphilitic eruptions, vegetations on the penis and anus, serpiginous ulcers, caries of the frontal and nasal bones, *exostoses*, *periostoses*, and osteocopal pains, alopecia about 200.

Almost all these secondary symptoms had been already treated by mercurials, more or less profusely administered in different forms, and most of them owed their existence only to the abuse of these preparations in excitable constitutions.

The basis of treatment was the employment of the depurative syrup, wherever the simple vegetable treatment did not effect a cure in patients desirous to attend to business and other pursuits. These cures it was often difficult to effect, and the treatment lasted from five to six months for most cases, and in some longer.

In the exceptions, the remedies used were the Rob of Laffecteur, the proto-ioduret of mercury, some preparations of gold, the ptisans of Arnout, of Zittmann, and the treatment of Dzondi by sublimate. But the most generally successful means in the management of diseases of the bones was the water of Pollini.

Comparative view of the three epochs from 1815 *to* 1835. *Secondary symptoms, chronic or mercurial.* The result is highly favourable to the modifications introduced into the treatment of these diseases in so short a time. The first period presents among 1108 venereal patients a table of 367 secondary severe chronic affections, consisting of 203 alterations of the cutaneous texture, indicated by large vegetations, serpiginous and cancerous ulcerations of the penis, of the lips, of the *aloe nasi*, of the groin, of the neck, &c.

In 7 cases, of change of structure of the tongue.

In 54 cases, of ulcerations of the mucous tissue of the mouth, of the soft palate, &c.

In 51 cases, in changes in the glandular tissue.

In 52 cases, in changes in the osseous and fibrous tissue, distinguished by caries of the frontal, nasal, and sternal bones, *necroses, periostoses,* osteocopal pains.

The inspection of the same symptoms comprised in the second epoch (from June, 1831, to 1st April, 1832,) presents a difference so striking, that it would be wonderful, was it not known that the works published in France by MM. Broussais, Jourdan, Richard, Desruelles, Dubled, Lefevre, Ratie, Cullerier, and Devergie, produced a great change in the treatment of syphilis, and modified the practice of physicians entrusted with the charge of several patients.

In 1830 cases, there were only 149 cases with secondary symptoms, viz.

122 affections of the skin, as vegetations, rhagades, syphilitic eruptions, tetters, &c.

24 cases of change of the mucous membranes, as amygdalo-naso-pharyngeal ulcerations.

3 affections of the osseous and fibrous system.

149 total.

The same proportion may be observed in the third period, in patients treated at the hospital.

In 1910 patients, there are only 174 cases of secondary symptoms of the following orders.

142 cases of affections of the skin, viz. vegetations, *rhagades,* syphilitic eruptions, tetters, multiform eruptions, &c.

25 cases of affection of the bucco-palato-pharyngeal mucous membrane.

7 cases of affections of the osseous and fibrous system, such as osteocopal pain, *periostoses,* and one *exostosis.*

174 total.

Even from these two lists of secondary affections (149 and 174) of the second and third period, a considerable deduction must be made; as they include vegetations which must be regarded as primary, *rhagades* supervening at the margin of the anus, unconnected with syphilis in men who have never cohabited with females, and many cases of multiform cutaneous eruptions, improperly sent to the venereal wards, when their origin is unknown, and which readily yield to the ordinary means.

This small proportion of secondary affections is in direct relation with the results by other physicians both French and foreign, entrusted with the care of venereal patients, and who have adopted the simple antiphlogistic method of treatment.—*Ed. Med. and Surg. Journ.* from *Archives Générales,* Oct. 1835.

27. *Poisoning with Arsenic, cured by Tritoxide of Iron.*—The evidences of the efficacy of the tritoxide of iron as an antidote to arsenic are accumulating. The *French Lancet* (Nov. 17, 1835) contains an account of two persons poisoned with arsenic, successfully treated by Dr. Buzorini, with the tritoxide of iron.

28. *Emmenagogue Properties of the Aconite.*—Dr. West, of Soulz, extols in an article in the *Archives Gén.,* August, 1835, the remedial properties of the aconite in amenorrhœa, arising from chronic engorgement or spasmodic condition of the uterus. He administers the aqueous extract, commencing eight days before the expected period of menstruation, in doses of a grain, and gradually augmenting the quantity until eight grains are taken daily at the ordinary day of menstruation.

29. *Fumigations in Hooping Cough.*—Dr. Dohm, of Heide, in the Dutchy of Holstein, has accidentally discovered a remedy for hooping-cough, that promises to be of considerable use in that too often obstinate and dangerous disease. Two of his own children, a boy and a girl, (the former one, and the latter three, years old,) had been suffering from hooping-cough for between two and three months; during which time several remedies, including belladonna, had been tried in vain. The paroxysms were very frequent and extremely violent, so that the

fæces and urine used sometimes to be expelled involuntarily. An accident of this kind occurred one evening during the absence of the father; and, to remove the ill smell thereby occasioned, the bedroom was fumigated, and that to such an extent that the child was enveloped in the smoke. Contrary to the expectation of the doctor, the child had not another attack that night; the cough became much milder, and the repetition of the same treatment soon cured it. This encouraged him to try it in other cases, and he invariably found the paroxysm greatly relieved by it, if not completely stopped. The fumigation was made with the common *species fumales* of the Pharmacop. Slesvico-Holst. (Olibani libr. duas, Benzoes, Styr. Calamitæ, sing. libr. dimid., Flor. Lavendul., Rosar. rub., singul. unc. quatuor.) He [we think very justly,] considers the benzoin to be the most efficient ingredient.—*British and Foreign Quarterly Review, No. 2. from Pfaff's Mittheilungen,* 1*ste Jahgr.* 1 *und* 2 *Heft.*

30. *Incontinence of Urine.*—The *Archives Générales* for January last, contains an interesting memoir on this subject by Dr. MONDIÈRE. After passing in review the various remedies recommended by authors for the cure of this complaint, viz. tonics, electricity, flying blisters, cold baths, aromatic baths, cantharides in several modes, &c. the author states his preference for the extract of nux vomica as the most efficacious. Five patients have been cured by Dr. M. by this remedy. The following account of one of these cases will show the mode in which he administers the medicine.

A girl 20 years of age, had from her sixth year suffered from incontinence of urine. Correction was tried in vain to break her of it, and her mother then waked her at midnight to make her urinate, but notwithstanding this precaution she would often wet her bed towards daylight. At 14 her menses appeared, but without altering her condition. Dr. M. who was consulted, ordered: ℞. extract, nux. vomic. gr. viij.; ferri oxyd. nig. gr. j. made into 24 pills, one to be taken three times a-day. After 12 of these were taken the incontinence of urine disappeared, but to prevent a relapse the pills were continued until 24 grs. of the medicine were taken. The cure has continued for a year.

31. *Hydrochlorate of Quinine.*—Dr. SPIELMAN, asserts that the muriate of quinine is a more speedy and effectual remedy for intermittent fever than the sulphate. It is more soluble also than the latter. The dose is from half a grain to a grain.—*Journ. des Conn. Med.* (Feb. 1836,) from *Allgem. Mediz. Zeitung.*

32. *Treatment of Chronic Glandular Swellings by Veratrine.*—MR. TURNBULL in a communication in the London Medical Gazette, (15th Feb. 1836,) states that whilst employing the veratrine in the form of friction in cases of chronic rheumatism attended by considerable swelling of the affected joints, he observed that the removal of the pain was followed by a marked diminution in the size of the articulation, and that in some instances, by steady perseverance in the treatment, the swelling disappeared; and from this circumstance he was led to try its effects in chronic glandular enlargements, and in these he found it of much service, even in cases where iodine had ceased to be of any use. This last, though a valuable medicine, is found, like all others, to lose its efficacy when employed for a length of time, and it therefore becomes an object with the practitioner to be possessed of other remedies, to which he can have recourse if necessary, and which he may make use of alternately with it.

"Veratrine is one of these;" says Mr. T. and after considerable experience of its effects in bronchocele, indolent tumors of the mammæ, bubo, and scrofulous tumors in different situations, I can recommend it as a useful external application. It has, besides, a few minor advantages: it may be rubbed over a painful tumor, and generally with the effect of giving immediate relief; it has no tendency to irritate the skin, which preparations of iodine often have, and the superfluous quantity of ointment may be removed with a little *warm* water and soap immediately after the friction is finished; and on these accounts it is preferable in tumors about the neck, as the part may be exposed immediately, if necessary.

The following is the formula I have generally employed:—

℞. Veratrinæ, gr. x.; Axung. ʒss. M. ut fiat unguent.

A piece of this ointment, the size of a nut, should be rubbed for ten minutes

twice a-day over the seat of the tumor; and at the end of every week an additional quantity of veratrine, in the proportion of five grains to the ounce, should be added to the prescription, so as to keep up the effect.

The other remedies which belong to the same class as veratria, namely, delphine and aconitine, have nearly the same effects; and it will often be found advantageous to substitute one of these for the veratrine, when its influence has become less by repeated application.

---

33. *On the Scarlet Fever as it appeared in Dublin* in 1831—4. By ROBERT J. GRAVES, M. D.—The scarlet fever assumed a very benign type in Dublin soon after the year 1804, and continued to be seldom attended with danger until the year 1831, when we began to perceive a notable alteration in its character, and remarked that the usual undisguised and inflammatory nature of the attack was replaced by a concealed and insidious form of fever, attended with great debility. We now began occasionally to hear of cases which proved unexpectedly fatal, and of families in which several children were carried off; still it was not until the year 1834 that the disease spread far and wide, assuming the form of a destructive epidemic. The nature of the disease did not appear in the least connected with the situation or aspect of the patient's dwelling, for we observed it equally malignant in Rathmines as in Dublin, on the most elevated habitations on mountains as in the valley of the Liffey. It raged with similar violence at King's Town, and throughout the provinces, exhibiting, so far as I have been able to learn from country practitioners, the same type over the whole of Ireland. The state of the weather seemed to exercise no influence either upon its diffusion or symptoms, which continued to exhibit equal virulence, no matter whether it was wet or dry, warm or cold, calm or stormy. The contagion seemed to act as a more deadly poison on the individuals of some families than upon those of others, and, consequently, when one member of a family had died, there was always much reason to fear for the others when attacked. At first I thought that its greater severity in such cases could be traced to a strumous habit, but subsequent experience did not confirm this suspicion, for the most scrofulous family I ever saw, went through the disease without a death, whereas in some others the mortality was great, although not a single indication of a strumous diathesis could be detected. Many parents lost three of their children, some four, and in one instance which came to my knowledge, five very fine children were carried off. As usual in such epidemics, the degree of intensity with which different persons were attacked varied exceedingly, some exhibiting the mildest form of scarlatina simplex, which required no treatment, and scarcely confinement to the room, while the majority were severely affected. When the disease was violent, it assumed one or other of the following forms.

First.—It at once produced not merely fever with sore throat and headache, but such violent congestion of the brain, and determination to the head, as occasioned convulsions and apopletic coma on the first or second day. This happened to a fine young woman of robust habit in Worburgh st., to whom I was called by my friend Dr. Brouton. She was attacked with convulsions on the second day, and died comatose on the third. In her the scarlet eruption was extremely vivid and general, a fact I notice as a proof that the congestion of internal organs was not caused by any retrocession of the eruption. In truth, as will appear hereafter, the worst cases had the most general, and most intense cutaneous efflorescence. When this tendency to the head took place in so violent a manner at the very onset, the patient was seldom saved; sometimes, however, very active measures of depletion, general and local, relieved the brain, and the case then went on favourably. This happened in a young gentleman residing in Upper Baggot street, to whom I was called by the late Mr. Nugent, of Merrion row. When the scarlet fever attacked a person subject to epileptic fits, the tendency to the head was increased by the epileptic habits, and the fits of convulsions at once supervened. Thus in the case of a gentleman, aged 22, who had been for several months treated by Mr. Colles and me for epilepsy, the fits commenced on the second day of scarlatina, and continued with frightful violence until the fifth day, when they proved fatal. In a young lady residing near Black Rock, to whom I was called by Dr. Wilson, precisely the same thing occurred. She had been subject to epilepsy for many years, and when the scarlet fever com-

menced she was at once seized with frequently recurring fits, which, in spite of the most active measures, ended in fatal coma on the fifth day.

In the *second form* of the disease which I noticed, the symptoms were exceedingly violent and intense from the beginning, and the disease set in with the usual symptoms of severe exanthematous pyrexia, remarkable in the very commencement for the violence of the accompanying headache and spinal pains, and for the great irritability of the stomach and bowels. Indeed one of the very first symptoms in such persons was nausea, vomiting, and bowel complaint. Large quantities of recently secreted bile were thrown up, and the patient passed frequent, at first, semifluid and afterwards fluid stools, curdled green, or saffron yellow, and evidently composed of bile suddenly effused into the intestinal canal, with a copious and hurried secretion of mucus from the internal membrane of the bowels, and mixed with some true fæcal matter. It was surprising what quantities were thus thrown up, and passed from the bowels by some during the first day or two of the disorder; neither the constant repetition of the nausea and vomiting, nor the abundance of the discharge from the stomach and bowels, in the slightest degree mitigated either the violence of the fever or of the headache, or seemed to prevent the full formation of the eruption. It was curious to observe that this obstinate vomiting and purging was unaccompanied by the slightest epigastric or abdominal tenderness; during its continuance the belly became fallen and soft. In fact its cause was situated not in the belly, but in the brain, a fact I did not perceive until I had had an opportunity of watching the progress of five or six such cases. It depended on cerebral irritation and congestion, and was in nature very similar to the irritability of stomach and bowels which so often accompany, and too frequently mask the progress of, acute hydrocephalus. As soon as I had become aware of the pathological relations of this vomiting and purging, I did not confine my endeavours to check these symptoms to measures intended to act directly on the stomach and bowels, such as effervescing draughts, chalk mixture, stupes, leeches to the epigastrium, &c., &c., I changed my plan of treatment, and turned my attention to the state of the cerebral circulation. Having in a former lecture referred to this topic, and having explained to you the manner in which derangement of the stomach and bowels of a properly gastric origin is to be distinguished from disorder of the digestive apparatus, originating in a sympathetic derangement of function, itself caused by a morbid condition of the brain, and having already pointed out the importance in practice of not confounding these two states, one or other of which is so common in the commencement of violent fevers, phlegmasiæ, and exanthematæ, I shall not at present dwell any longer on this subject. The second form of scarlatina was likewise remarkable for the violent excitation manifested from the very beginning in the circulating system and in the production of animal heat. The pulse at once rose to above 100, it was seldom less than 120, and in many cases, particularly in young people, it ranged from 140 to 150. I have never in any other disease witnessed so many cases of excessively rapid pulse. In general the pulse in this form was regular, but in two cases it became irregular; one was that of a gentleman living in Upper Mount street, whom I attended along with Dr. Marsh; his pulse became intermitting and irregular on the third day, and continued to be more or less thus affected for about a week. This gentleman was attacked with subsultus, delirium, jactitation, and various nervous symptoms at a very early period, and complained constantly of his throat and head. The former was violently inflamed, and his skin was covered with a bright red eruption. On the ninth day he was seized with convulsive fits of great violence, and which returned very frequently during the night; his case appeared utterly hopeless, and yet he perfectly recovered. In a young lady, whose case is detailed by Dr. Nolan, great irregularity and intermission of the pulse commenced about the eighth day, and continued during the stage of danger; she also recovered. Of course irregularity of the pulse was in many not so much a symptom of disease as of approaching death, but then the state of the patient could not be mistaken, judging from all the other circumstances of the case. The acceleration of the pulse abated in all when an evident improvement in the general condition took place, but in few did the pulse become quite natural for many days after a favourable change, and in none did it fall to its usual standard in the course of twelve or twenty-four hours, as it not unfrequently does after

the crisis of continued fevers; in fact, the scarlatina never ended with a well-defined crisis. As to the temperature of the body, I have already observed that in the cases I am now describing it was from the first considerable, and continued elevated until a very short period before death. Both the pulse and the heat of skin, however, were very easily reduced in energy by the use of the lancet or by the repeated application of leeches, and it was not uncommon to observe that even the judicious use of these means induced a general coldness of surface, very great sinking of the strength, and a faltering state of the pulse. This was remarkably the case in a young lady whom I attended along with Mr. Wilkinson, in Black Rock, and also in one of the family whose cases are related by Dr. Nolan. In both, these effects were very obstinate and alarming, for reaction was not restored until after the lapse of more than twelve hours; both finally recovered. The pulse was sharp but not strong, and resembled the pulse of great irritation rather than that of true inflammation. The most distressing symptom at the commencement of this form of scarlatina was the sore throat; the fauces were violently inflamed, and deglutition consequently much impaired, while a general soreness was felt in the back of the head and neck; urgent headache was complained of by all, and from the second day the eyes became suffused; great restlessness, anxiety, jactitation, moaning, and interrupted raving soon made their appearance, and in many sleep was banished or utterly broken by startings and delirium before three or four days had elapsed. The eruption had now arrived at its height, which it did with great rapidity, dating from the first moment of its appearance, so that the skin, every where covered with a scarlet eruption, resembled in appearance the hue of a boiled lobster. In these violent cases the efflorescence was perfectly continuous, and never broken into spots or patches; the skin appeared as if evenly died with one uniform colour; the surface of the tongue was likewise much affected with the same exanthematous redness, and soon became foul, and afterwards dry and parched. The sudden drying of the tongue on the fifth or sixth day indicated in this form a rapid aggravation of the disease, and death in several cases was observed to follow this change in less than twenty-four hours, when this change was, as in a young gentleman who Mr. Rumly and I attended in French street, accompanied by a sudden acceleration of the pulse and increase of the jactitation and delirium. In this form the brain and nervous system seemed to be the parts which suffered most, and many became insensible for several hours before death; others had convulsions: when the patient survived the seventh day there was a fair chance of recovery, but many, too many, died on the fourth, fifth, or sixth days.

After I had witnessed a few examples of this form of scarlatina, I consulted with several of my friends and colleagues, and we determined to use the most active measures of depletion in the very first instance that occurred to us. A case was not long wanting. Dr. Marsh and I were engaged in prescribing for some children labouring under the epidemic, in a house in Pembroke street, where our attention was directed to a fine boy, six years old, and hitherto perfectly healthy, who was, while we were paying our visit, attacked with the first symptoms of the complaint; we immediately resolved that as soon as the stage of rigor and collapse which preceded the febrile reaction had passed, to visit him again and act energetically, if circumstances seemed to permit it. Accordingly we came again in the course of a few hours, and found reaction already established, attended with vomiting, purging and headache. The sore throat, too, was much complained of, and there was great tenderness of the external fauces. We ordered relays of leeches, eight at a time, to the neck, for the purpose of relieving both the throat and brain, and we administered James's powder and calomel internally. On the next day the skin was burning in spite of a copious loss of blood from the leech-bites, the eruption vivid and already established, the pulse 140, and there had been little or no sleep. Relays of leeches were again ordered, and persevered in until considerable and lasting faintness was produced, and yet no impression seemed to be thereby made on the disease; no abatement of its virulence seemed to be the result, for the raving became more incessant on the second night, and on the third day suffusion of the eye commenced, and the tongue became parched. Shaving of the head, the most industrious application of cold to the scalp, and various other remedies were in vain applied; the pulse became weaker, the breathing quicker, the strength failed rapidly, raving and delirium

gave place to insensibility and subsultus, and the patient died on the fifth day. In this case depletion was applied at once and most decidedly, for we blanched and weakened the boy by loss of blood as far as it was possible to venture, and yet the disease was not in the least degree checked, nor the symptoms even mitigated.

A fine boy, thirteen years of age, was attacked in the county of Wicklow, when he was placed under the care of a very judicious practitioner, who did not use either venesection or leeches, but relied chiefly on the exhibition of diaphoretics, particularly antimonials. The boy died on the seventh day, having suffered much from delirium, subsultus, want of sleep, &c. His brother, who was one year older, and a very strong boy, was seized with the disease in Dublin, and placed immediately under my care. I had the advantage of Mr. Rumly's assistance, and we determined to prevent the supervention of the cerebral symptoms if it were possible to do it by means of antiphlogistic treatment; we failed, and our patient died on the sixth day. In short, this form of the disease, where the pulse, without becoming strong, *at once became extremely rapid*, bore venesection badly, and required great caution even in the application of leeches, the nervous symptoms only appeared accelerated by the system of depletion, although the heat of the skin suggested its employment. The derangement of the brain and nerves in this form depended on something more than the violence of the circulation, and originated in something altogether different from mere cerebral inflammation or congestion. What that something was I cannot even conjecture, but it was probably the result of an intense poisoning of the system by the animal miasma of the scarlet fever. Every tissue of the body seemed, if I may use the expression, equally sick, equally overwhelmed, and it is probable that the capillary circulation in every organ was simultaneously deranged. It was not gangrene of the throat which proved fatal, for in this form it never occurred; it was not inflammation of any internal viscus, for such was not found on post-mortem examination of the fatal cases, but it was a general disease of every part. In many, another state of things, which required to be carefully distinguished from that just described existed, and the disease was evidently attended with an inflammatory state of the constitution, requiring energetic measures. In such cases the symptoms were severe in the commencement, the throat very sore, the efflorescence, however, not quite so sudden or so perfect, and the pulse never near so quick, never excessively rapid, and always strong and distinct. Such bore bleeding and leeching well, and experienced from their use almost immediate alleviation of the sore throat, headache, and restlessness, and were not much weakened by the depletion. It must be confessed that it was often exceedingly difficult to determine, *à priori*, whether the depletory system ought or ought not to be tried; where doubt existed, my custom was to try moderate leeching, and from its effects I judged of the propriety of persevering.

The disease very frequently occurred in *a third form*, more singular still than the two first, and much more insidious in its commencement. This form was evidently very common in the epidemic scarlet fever described by Withering, as cited by Dr. Tweedie. In this form the disease was ushered in by the usual symptoms of pyrexia, together with sore throat, slight headache, and in due time, a very moderate and normal eruption. The symptoms continued moderate, the patients, after the first few days, slept tolerably well during the night, had no raving, and were quiet during the day. About the fourth or fifth day all the febrile symptoms had so far subsided, that a most accurate examination could detect nothing urgent, nothing in the slightest degree either alarming or calculated to excite the least anxiety in the patient's condition. His skin became nearly of the natural standard, his thirst diminished, and the pulse was now scarcely accelerated; a calm nearly complete, in fact, seemed to have followed the first onset of the disease; and on entering the room the physician might easily be deceived, as I myself was more than once, into the pleasing hope that all danger was past, and that perfect recovery might confidently be anticipated. This hope was, in truth, founded on such circumstances as we can usually rely on; for who would prognosticate danger where his little patient, sitting up in bed, and perhaps eating a dry crust with some appetite, had a placid countenance, and had enjoyed a night of tranquil sleep? Regular alvine evacuations, diminution of thirst, sore throat, headache, and fever, together with the normal state of the cutaneous eruption, all conspired to confirm a favourable prognosis; and so matters proceeded,

43*

the family dismissing all apprehension as to the result, and the physician most probably discontinuing his attendance about the seventh day, in the belief that all danger was over, and that his interference was no longer necessary. Matters proceeded thus until the eighth or ninth day, when a certain degree of restlessness was observed to occur, and in the morning a slight return of fever might be noticed. Then it was that a peculiar train of symptoms set in. The nostrils assumed a sore and irritated appearance about the edge of the alæ, and a serous moisture began to flow from their internal cavities. Sore throat was again complained of, the skin became hot, great debility and prostration of strength came on suddenly, a painful tumefaction commenced in the region of the parotids and submaxillary glands. This tumefaction increased rapidly, becoming every day harder, more elevated, diffused, and exceedingly tender, but without much redness. In the course of a few days it surrounded the neck like a collar, and being attended with swelling of the face, the poor little patient's countenance was sadly disfigured. In the meantime the discharge from the nose had increased considerably, and become more viscid and fetid; the internal membrane lining the nasal passages was affected throughout, its entire surface everywhere inflamed and tumefied, so that a snuffling sound was produced when the patient breathed through his nose; at length the discharge increased to such a degree, that the nostrils became completely impervious to the air in breathing. The state of the throat generally began to alter for the worse at the very commencement of this change; and a similar inflammation, attended with an ill-conditioned secretion of lymph and fluid, occupied the entire surface of the mouth and tongue, and at last spread deep into the pharynx. While this was going on, the fever freshly lit up at once exhibited the most decided symptoms of the worst form of typhus, and subsultus, constant muttering, raving, anxiety, want of sleep, restlessness, moaning mingled with an occasional screech, reminding one of that which is so ominous in hydrocephalus. Great difficulty was now experienced in swallowing, and the drink was frequently spurted out of the mouth after a vain attempt at deglutition. Matters now proceeded rapidly from bad to worse, and at last, after much suffering, death closed the scene, being preceded for many hours by a state of extreme restlessness, during which it was impossible to determine whether the patient was still sensible. The swelling of the neck went on increasing to the last, but seldom exhibited any tendency to the point: it continued, on the contrary, everywhere hard, or at most became indistinctly softened, or, to use a technical phrase, "boggy." When cut into, no matter was found; blood, serum, and a diffused cellular slough, not separated from the living tissues, were observed on making the incision.

---

34. *On the Scarlet Fever as it appeared in Dublin in* 1834. By JOSEPH M. FERRALL.—"Of seventeen cases of which I possess notes, four occurred in adults, three in children under four years of age, and the remainder at different ages between the latter and fourteen or fifteen years. I seldom saw the cases in the commencement. The mode of attack was occasionally similar to that of common sorethroat, followed by rigors. Sometimes violent pyrexia and shiverings, with intolerable headache, and even delirium preceded the other signs. In some few cases the efflorescence first attracted notice, the fever in these instances being throughout so mild as scarcely to demand attention.

"The progress of the disease was various, but usually bore a relation to the character of the incipient fever. In general the fever increased in intensity as the disease advanced, or as new parts became engaged, but this was not always the case. In two instances which I saw in a state of great vital depression on the third or fourth day, I was assured that the early fever was very high, although it had passed rapidly into the typhoid state.

"The danger sometimes appeared to arise from the condition of the entire system, sometimes from that of important parts. Of two cases which I saw when dying, one was sinking like a person in typhus fever; the other, a boy thirteen years old, was moribund in the coma which succeeded to violent phrenitic delirium. The latter case was remarkable in this, that the phrenitic state occurred while the eruption was in its prime, the whole body retaining its deep scarlet colour until a short time before his death. The disease in this instance set in with delirium, which had been subdued, I have reason to believe, by the most

active means. Death occurred in one instance from croup, the disease of the throat having passed into the trachea and bronchial tubes. In another, sloughing of the fauces, with low fever, carried off the patient on the sixth day.

"In several, who ultimately recovered, life was seriously endangered by local inflammatory attacks. In one instance, a girl about seven years old, enteritic symptoms sprang up suddenly while the patient was in a very weak state, and were with difficulty subdued. In another, a boy ten years old, acute pain in the region of the heart occurred when the eruption was on the decline; it was accompanied by short cough, palpitations, dyspnœa, rapid, though not irregular, pulse, and sudden accession of fever. There was no perceptible *frottement*, but the action of the heart was violent, and there was acute pain on pressure. It yielded to leeching, followed by calomel with James's powder till the gums were slightly touched.

"Another patient, a girl twelve years old, narrowly escaped the effects of sloughing of the throat. Croup occurred in two instances, in which, notwithstanding the opinions of M. Trousseau, I could not doubt its origin in scarlatina. It happened no doubt, in cases which had exhibited the diptheritic patches, without much surrounding inflammation on the tonsils, but the eruption was sufficiently marked to remove all obscurity. One child who recovered ejected the false membrane (which I still preserve) in a tubular form, and presenting a cast of the trachea a little beyond its bifurcation. In the child before mentioned, who died, patches of false membrane were also ejected, but she sank exhausted, and the disease was afterwards discovered to have extended far into the bronchial ramifications.

"Although the treatment was generally antiphlogistic, this plan was not always applicable, even in the commencement of the disease. In all instances which I had an opportunity of observing, it was necessary to watch the effects of local bleeding. It was easy to pass the boundary of relief, and then, most difficult to repair the loss and meet the symptoms of exhaustion when they had actually set in. Wine and diffusible stimuli were often required from this cause alone, even when the cases had nothing of the malignant or typhoid character in their nature.

"Tepid sponging appeared in many instances preferable to cold, and I think the soothing effects were of longer duration. Reaction and the distressing sense of burning heat did not appear to recur so soon as when cold fluids were employed. Purgatives, except of the mildest kind, were not well borne, but cooling diuretics were clearly indicated, and when persevered in, had, in many cases, the apparent effect of anticipating the sequelæ of the complaint.

"The ulcerations and sloughings of the throat were treated by nitrate of silver, alum, and the chlorides, according to their states. But none of these applications were to be depended on, when the colour of the fauces was intensely red, unless a few leeches had been previously applied. In one gentleman, 28 years of age, free leeching externally (to the number of 40) failed in removing the sense of suffocation or enabling him to swallow. A few leeches applied to the inside of the nostrils was followed by copious bleeding and immediate relief. The latter expedient was indicated by the tumid state of the vellum and pituitary membrane, the stertorous breathing, and complete occlusion of the nares.

"Its mode of spreading in families was uncertain. It sometimes attacked children within a few days of each other; at other times a fortnight has elapsed before I was again requested to see a new patient. Some children escaped the disease altogether.

"Among the sequelæ which I had occasion to see, diarrhœa occurred in two or three instances, chronic bronchitis in one, and anasarca in four. The urine was slightly albuminous in two of the latter cases before the face and limbs began to swell; in the other two it exhibited this character when the disease was formed, but I did not see them previously. The treatment of the anasarca was antiphlogistic and diuretic, and succeeded in restoring three to perfect health; the fourth still remains an invalid, but not from this cause; the apex of the right lung affords evidence of tubercular disease.

"I have now to mention a peculiar affection of the neck, which I have not before seen in connexion with scarlatina, but of which four cases have occurred during my observation of the epidemic in question.

"CASE I.—About the beginning of August, 1834, I was requested by my friend Dr. Davy to see a young girl, ten years old, in Upper Baggot street. Her convalescence was tedious, some degree of fever still existing at the end of six weeks from the commencement of the attack. But her principal complaint was severe pain of the right side of the neck, close to the head, and extending as high as the vertex on the least motion of the part. She could not raise her head from the pillow without putting a hand at each side for its support, and when taken out of bed, instinctively sought a resting-place for her chin. Her face was awry, its vertical diameter passing from above downwards, and from right to left. Posteriorly the upper cervical vertebræ were curved, the convexity of the curve being situated a little to the left of the middle line; there was considerable swelling of the soft parts covering the bones. Pressure here was intolerable, and the least attempt to rotate the head occasioned severe pain. Deglutition was now tolerably easy, but there had been considerable difficulty of swallowing during the early period of the complaint. There was here obviously a carious state of the articulation of the atlas and dentata, and we did not expect to remove the curvature. Perfect rest was, however, enjoined, and the usual remedies employed with a view to arrest the further progress of the disease. She gradually recovered her health, and is now lively and well grown, but the curvature is permanent.

"CASE II.—Early in August, 1834, Mary Inglesby, of Russell-place, æt. 7, was sent to me by Mr. Long, of Summer Hill. She was confined to bed in scarlatina for a fortnight. At the end of this time she was taken out of bed, and then the head was observed to be turned to one side. It was now five weeks altogether from the beginning of the disease, and the parts were still in the same state. The face was awry. She complained of pain in the concavity of the curve and that side of the head, and could not bear the slightest motion or shock. Leeches were prescribed, and calomel given afterwards in doses of a grain three times a day till the gums were touched. As soon as this effect was produced the pain subsided, and the head gradually acquired its natural position. Her recovery was complete.

"CASE III.—A younger brother of Mary Inglesby was subsequently under the care of Mr. Long for scarlatina. The same state of the head and neck were detected on the 13th day, and treated by Mr. Long on the same plan as that adopted in the former case. The pain disappeared as soon as the mouth was made sore, and the position of the head became natural. He is now in good health.

"CASE IV.—I met Mr. Edgar, of Arran Quay, in February last, in the case of a young gentleman about six years old, whose convalescence from scarlatina was tedious, and in whom the difficulty of swallowing persisted after the redness of the fauces was removed. On taking him out of bed it was remarked that he was quite unable to keep the head erect. The symptoms were similar to those of the two last cases, but in a milder degree. A few leeches were applied, and evaporating lotions instantly used to the part on account of considerable local heat. The leeching was repeated in a day or two, but as the symptoms yielded rapidly, and as he had some tendency to diarrhœa, calomel was not employed. In about a fortnight the natural position of the head and neck was restored.

"I can offer no better explanation of the occurrence of this affection during the progress of scarlatina than by supposing that the inflammation of the fauces and back of the pharynx was propagated to the covering of the spine, and thence more or less deeply to the adjoining parts. In all those cases there had been marked and prolonged difficulty of deglutition as a symptom of the disease; and it is to this circumstance I am desirous of calling attention, as affording an index for a careful review of the condition of the spine during the period of convalescence. Should a child be observed to lie more on one side than the other, and evince an unwillingness to be disturbed, it would be an additional reason for suspecting a tendency to this complaint."

35. *New Vermifuge.*—Mr. OXLEY recommends the seeds of the *Quisqualis Indica*, RUMPH. (Herb. Amboin. v. 71.), as a vermifuge worthy the attention of the profession. Four or five nuts pounded and given in a little jam or honey, are, he says, a sufficient dose. He has known twenty-nine lumbrici discharged after a single dose.— *Trans. Med. and Phys. Society*, Calcutta, vol. vii.

OPHTHALMOLOGY.

36. *Ptosis cured by Croton Oil.*—Dr. Campanelli relates in the *Annali Univ. de Med.*, July, 1835, a case of paralysis of the upper eyelid, which he promptly relieved by the application of four drops of croton oil to the affected lid, and the eyebrow.

37. *Operation proposed by Professor* Jaeger *of Vienna, for the cure of bad cases of Ectropium and Lagophthalmus.*—Dr. Wm. Brown of Glasgow, has given the following account of this operation, in the *London Medical Gazette*, (6th Feb. 1836.) " When the deformity is considerable in cases of ectropium and lagophthalmus produced by a cicatrice of the skin, both the transverse and perpendicular diameters of the eye-lid are faulty in their dimensions; the perpendicular diameter, or the breadth of the eye-lid, is shortened, and the transverse diameter is elongated. The object of Professor Jaeger's operation is to increase the breadth of the eye-lid, and to reduce the transverse elongation to a proper length. This two-fold aim is accomplished by attending to the following indications: 1. Unnatural adhesions to the edge of the orbit are to be loosened by dividing cicatrices. 2. The abnormal length of the palpebral margin (the distance between the external and internal commissures of the eye-lid) is to be diminished to the normal length by excising a quadrilateral shaped portion of the whole thickness of the lid. 3. The breadth of the eye-lid is to be restored by detaching the integuments from the bone in the neighbourhood of the orbit, and drawing them upwards or downwards according to circumstances. 4. The wounds made are to be united by sutures. 5. The position of the new eye-lid is to be maintained by the proper application of plasters, compresses, and bandages. 6. After the operation, the patient is to be treated conformably to the principles of surgery.

The older operators only regarded the perpendicular diameter of the eye-lid, the dimensions of which they unsuccessfully attempted to increase. Sir William Adams was the first to point out and perform a successful operation for reducing the longitudinal diameter of the eye-lid to its normal length. His operation consists in the excision of a triangle-shaped piece from the edge of the eye-lid. Adams also attempted, but he failed as many before him had done, to increase the perpendicular diameter of the eye-lid by incisions in the skin. Fricke and other eminent German surgeons have succeeded in rectifying the faulty breadth of the eye-lid by the transplantation to it of a portion of skin from the brow or cheek, but in their operations they have made no provision for diminishing the horizontal diameter. Both objects are effected by Jaeger's operation.

Jaeger's operation is not intended for simple cases of ectropium. It is meant as a remedy for those cases which are the result of a cicatrice of the skin producing considerable loss of substance in the eye-lid, and where the transverse diameter is too much elongated to admit of the lid coming into contact with the ball of the eye. Where the tarsus is diseased in structure, and abnormal in its course, and where the eye-lid is adherent to the cheek, the edge of the orbit, or to the supra-orbital region, this operation is particularly applicable.

Professor Jaeger performs this operation in lagophthalmus, when much of the eye-ball is exposed, and though the disease be unattended with eversion of the affected lid.

It is also recommended as a suitable operation after the extirpation of excrescences or tumor of considerable size from the eye-lid, when it has been found necessary to remove a portion of the palpebra along with the tumor. In cases of this description, the form of the eye-lid may very frequently be restored by the operation about to be described.

During the performance of this operation, the patient may be seated on a low chair, with his face towards the light. A child may be placed in the lap of an adult. Two assistants are requisite. One of them supports the head of the patient on his breast, and elevates the upper eye-lid when the operation is to be performed upon the under one; the other assistant hands the instruments to the operator, and sponges away the blood. The instruments necessary are two fine scalpels, one of which is to be straight and double-edged, and the other single-edged and convex upon its cutting surface. A dissecting hook and forceps, a

straight forceps and scissors, are also requisite. In addition, the operator is to be provided with needles, ligatures, court plaster, adhesive plaster, lint, graduated compresses corresponding in size to the circumference of the orbit, and a double-headed roller four or five yards in length.

Before proceeding to the operation the difference in length of the transverse diameter of the everted and sound lid is to be accurately ascertained by measurement. In the operation, the palpebral margin of the everted eye-lid is to be made to correspond in length with that of the sound lid on the other side of the face.

The next step in the operation on the upper lid consists in taking hold of the everted palpebra about the centre of its edge with the dissecting forceps, or hook, and drawing it downwards so as to put the cicatrice on the stretch, by which the palpebra is adherent to the margin of the orbit. With the convex scalpel, a deep incision is now to be made, which is to take its course about midway between the margin of the everted lid and the superciliary arch. The incision is to be commenced and terminated in sound skin. The wound is to be carried through the whole thickness of the eye-lid, so as to form a slit through which the eye-ball may be seen, the palpebral margin falling down and leaving that opening through which the eye-ball appears. The length to which this incision is to be carried must depend on the circumstances of the case. In case of wounding the eye-ball, a horn spatula may be inserted between it and the eye-lid, should the operator deem a precaution of this kind necessary.

The narrow strip separating the natural rima palpebralis from the artificial opening formed by the incision just described, is the part from which the reduction of the transverse diameter of the eye-lid is to be made. The size of the portion which ought to be removed is already known from the measurements made before the operation was commenced. The superfluous elongation should be removed from the centre of the strip, and the lines upon which the incisions are to run may be marked with a black-lead pencil or ink. With the aid of scissors and straight forceps this part of the operation is easily effected.

A straight double-edged scalpel is now to be used for the purpose of separating the integuments from the os frontis. The forceps is to be used in taking hold of the upper lip of the wound, and for separating it a little from the edge of the orb; the scalpel is now to be introduced upwards and slightly outwards between the posterior surface of the orbicular muscle and the anterior surface of the frontal bone. Having been pushed onwards to a sufficient depth, the blade is to be carried with a sawing motion towards the temple and external canthus, and then towards the median line of the os frontis, without enlarging the original wound of the palpebra, transfixing the skin, or injuring the periosteum. By this process the skin and muscle covering the supra-orbital region and the angles of the orbit are separated from the subjacent parts, and rendered capable of undergoing a change in their position. The depth to which the scalpel will require to be carried, and particularly the extent in the transverse direction to which the integuments ought to be detached, must always be proportionate to the loss of the palpebral substance, and to the varying mobility of the frontal coverings.

The wounds are now to be united by the interrupted suture. The tarsus is to be transfixed by each ligature; but the conjunctiva is to be carefully avoided. The perpendicular wound, by which the undue elongation of the transverse diameter of the eye-lid was shortened, is first to be united by means of two ligatures. An assistant is then to draw downwards, towards the centre of the orbit, the integuments recently detached from the supra-orbital space and from the angles of the orbit, so as to approximate the edges of the wound made in the transverse diameter of the eye-lid. The first ligature is to be inserted in the middle of the wound, in order to act as a central point of attraction upon the surrounding integuments. Should the upper lip of the wound not much exceed the lower lip in length, lateral ligatures may be immediately inserted; if on the other hand it exceed to the extent of forming a fold, this must be removed by the scalpel or scissors, in order that the edges of the wound may be nicely adjusted. The number of ligatures that will be required cannot *à priori* be determined.

Coaptation of the wound having been effected in this manner, the eye-ball is covered by integuments obtained partly from the supra-orbital region, but chiefly

from the angles of the orbit; the supercilium will, however, be somewhat more depressed, and describe a smaller and less convex arch than it formerly did.

The operation upon the under eye-lid consists in removing a triangular piece from its edge, after the plan of Adams for the cure of ectropium, and in detaching the integuments from the edge of the orbit by a similar process to that already described for increasing the perpendicular diameter of the upper lid.

The action of the ligatures is to be supported by interposing narrow strips of court plaster. The wounds are then to be covered with small pieces of lint; and the graduated compresses, which have been already described, are to be placed upon the supra-orbital region, or cheek, according as the operation has been done for the restoration of the upper or lower lid. Over the graduated compresses long strips of adhesive plaster are to run, being applied in such a manner as to draw the integuments towards the palpebra, and to approximate them to the bones. When the upper eye-lid has been operated upon, the adhesive plasters may extend from the nape of the neck to the cheek. A roller may be applied to assist the action of the plasters, if it be deemed necessary. In the after treatment nothing ought to be omitted likely to effect union by the first intention.

SURGERY.

38. *Note on Subcricoid Tracheotomy.*—By M. MOREAU. Laryngitis, or Laryngotracheitis, requires, at a certain stage, a surgical operation, which has been improperly termed *bronchotomy*—the bronchia not being the parts engaged. It is more correct to give to every operation practised on the principal air-passage, a denomination which definitely points out the part concerned. We shall, therefore, speak of *tracheotomy*.

From the time of Asclepiades, of Bythinia, who may be regarded as the inventor of the ingenious proceeding of making an artificial passage for the air, the ancients were accustomed, in all cases of suffocation, to incise the integuments and the trachea transversely, between the third and fourth rings; thus (so to speak) cutting the patient's throat. At a later period, Deckers and Buchot, in order to avoid hæmorrhage, pierced the soft parts and subjacent trachea with a trocar armed with a canula; but they frequently made a contused wound, injured the vessels, and were exposed to the danger of piercing the trachea through and through, so as to enter the œsophagus, &c. Vicq d' Azyr, guided by anatomical considerations, incised the crico-thyroid membrane transversely. Nevertheless, he gained by this means only a little opening, with a wound difficult to heal. Since his time, various modes of proceeding have been imagined, such as the *tracheotomy* of former times, the *thyroitomy* of Desault, the *crico-tracheotomy* of Boyer, and lastly, the *sub-hyoideal laryngotomy* of M. Malgaigne. Of all these methods, *tracheotomy* alone is in repute in the case of membranous croup.

In the *Gazette Medicale* for January 31, 1835, I described a bivalve canula, which is to be used in the operation which I now propose—*sub-cricoideal tracheotomy*. I shall not enter on a discussion of the various methods of procedure enumerated above. I shall confine myself to an examination of the parts on which we operate in *ordinary* tracheotomy, and of those concerned in *sub-cricoideal* tracheotomy. I designedly omit, therefore, *thyroidotomy* and *sub-hyoideal laryngotomy*, because these modes of operating are not employed, except in cases where foreign bodies have found their way into the air-passages. I omit, also, the *crico-tracheotomy* of Boyer, for the section of the cricoid cartilage cannot in any degree assist in keeping the wound open; while the elasticity of that cartilage is such, that it is almost impossible to keep the lips of the wound apart, even with a dilator.

Ordinary Tracheotomy.—Proceeding from above downwards, from the cricoid cartilage to the top of the sternum, and from the superficial to the deeper parts, we find the cervical aponeurosis, the sterno-hyoid and sterno-thyroid muscles, and the first rings of the trachea; then the isthmus of the thyroid gland, of variable size; next the thyroid plexus of veins, a layer of cellular tissue, and the trachea crossed inferiorly by the brachio-cephalic trunk. We have also to re-

member that all the soft parts may be infiltrated with serous fluid, or with gas, and the veins may be gorged with blood.

In performing the operation, which I shall only superficially describe, we divide successively (in the median line) the skin and aponeurosis, and thus come between the sterno-hyoid and sterno-thyroid muscles of each side. Then, starting from the thyroid body, we divide the thyroid plexus of veins, and the trachea is uncovered.

M. Trousseau has remarked, that the more embarrassed is the respiration, the larger are the thyroid veins, and the more blood do they yield. He therefore advises that, notwithstanding the hæmorrhage, the trachea should be opened immediately, for a ligature, if applied, would not always be sufficient to arrest the flow of blood. He also takes the precaution to place a small piece of sponge beneath the edge of the wound and over the mouths of the divided vessels, both to check the hæmorrhage, and to prevent the entrance of air into the veins, an accident which, according to Messrs. Larrey and Dupuytren, is instantly fatal. As soon as the trachea is opened, we ought to incline the patient forwards, so that the blood may flow outwards, and the respiration be freely established, which generally puts an end to the hæmorrhage. Sometimes, however, in spite of these precautions, the hæmorrhage persists; on which account M. Recamier advises us, whenever the state of the patient will permit, to wait twelve or twenty-four hours before opening the trachea; and for the same reason authors recommend that the patient, if able, should take a few deep inspirations, and to tie all the vessels which continue to bleed, before opening the trachea. It is with this view, lastly, that I propose *sub-cricoideal* tracheotomy, which has the following advantages over the proceeding described above. 1. It finds the trachea less deeply situated. 2. It does not expose us to an encounter with the brachio-cephalic trunk. It is performed in parts sufficiently free from vessels not to yield much hæmorrhage.

Sub-cricoideal Tracheotomy.—Between the inferior border of the cricoid cartilage and the upper curvature of the isthmus of the thyroid gland, there is a space about a quarter of an inch long, entirely free from vessels. It is formed by the first rings of the trachea. Below is the thyroid isthmus, which is occupied by the venous plexus only in its two inferior thirds. Very rarely the thyroid arteries, which pass along each side of its superior border, anastomose in its middle portion. It is, therefore, on its anatomical peculiarities that sub-cricoideal tracheotomy is founded.

The instruments required for the operation are, a straight or convex bistoury, a tenaculum, waxed threads, fine sponges, tepid water, and linen. The patient ought to be placed in a sitting posture, or lying on his back, with his chest raised, and the hands placed behind him, so as to give free play to the respiratory organs. The head should be slightly turned back, and kept motionless by a sufficiently resisting pillow. The operator places himself at the right hand of the patient, in any position which is most convenient to himself, with the bistoury in his right hand, while he commands with his left the larynx, and the parts on which he is to operate. The skin is stretched by the left thumb and inner border of the left hand. He then cuts through the integuments in the median line, layer by layer, to the extent of an inch, or an inch and a half, from above downwards, beginning at the superior border of the cricoid cartilage. We then come to the cellular tissue which separates the sterno-hyoid and sterno-thyroid muscles of each side. This is divided, and the trachea is uncovered, as well as the isthmus of the thyroid gland. The operator then plunges the point of the bistoury immediately beneath the inferior border of the cricoid cartilage, and divides the trachea from above downwards, in the median line, to the extent of about half an inch; including in the incision the superior third of the thyroid isthmus. The wound is cleaned with a little bit of fine sponge, and the bivalve canula is introduced. The only difference now in the patient's respiration is, that it takes place through an artificial channel.

It should be noticed that this proceeding requires the application of the *bivalve* canula; an opening of half an inch not being sufficient to admit any other.—*Gazette Medicale de Paris*, 24th Oct. 1836.

39. *Ligature of the Subclavian Artery for a supposed Aneurism.*—Mr. EARLE in

the year 1830 applied a ligature to the subclavian artery of a patient in St. Bartholomew's, affected with a pulsating tumour situated immediately below the left clavicle. This tumour had been gradually increasing for ten months, and on careful inspection was supposed to be caused by an aneurism of the subclavian artery. The tumour was of the size of half an orange; its lower margin was, firm and no pulsation could be felt at this part, nor when examined from the axilla beneath the edge of the pectoral muscle; at the upper part the tumour was softer, and the pulsation very distinct. The pulsation in the humeral and radial *was as strong as on the healthy side.* This circumstance, added to the firmness of the greater part of the tumour, induced Mr. Earle to hope that a spontaneous cure, by obliteration of the aneurismal pouch, might be effected, without the current of blood in the direct course of the artery being arrested. The treatment adopted consisted in repeated small bleedings and the application of ice to the tumour. The swelling remained nearly stationary as to size and the pulsation became less distinct. A consultation having been held Mr. Earle's colleagues decided upon the propriety of an operation, and Mr. Earle in opposition to his own views performed it on the 14th of April, 1835.

" The patient was placed on a table, with the head and shoulders slightly elevated. An incision was made through the integuments and platysma myoides, about four inches and a half in length, along the upper edge of the clavicle. It was necessary to divide a considerable vein which crossed the wound and entered the jugular; a ligature was passed round this, and the dissection was cautiously proceeded with; in doing which, I was materially assisted by having a small knife, shaped like a cornea knife, only so blunt as not to cut, although it separated the firm cellular tissue more easily, and with less violence, than an eyed probe or the handle of a scalpel, which are commonly employed for this purpose. On introducing my finger into the wound, I could distinctly feel the beating of the aneurismal tumor, which had raised the clavicle considerably from the first rib, although the shoulder was not much elevated.

Having felt the tubercle of the first rib, and the edge of the scalenus, my fingers detected a pulsating cord in the situation of the artery, under which I passed an unarmed needle without any difficulty. On examining this cord, under which I had passed the needle, I distinctly felt the pulsation as strong as before; but on compressing it on the needle, the pulse at the wrist was not arrested, and the man complained of a pain at the inner side of his elbow. It became apparent that I had surrounded the ulnar nerve, and not the artery, which was situated immediately below it, and communicated its pulsation to the nerve, even through the needle which was interposed.

Previously to withdrawing the needle, I armed it with silk, and requested Mr. Stanley to draw the nerve gently upwards and outwards. By this expedient, with a little more dissection, I fairly exposed the naked artery, and passed the same needle round it; and on compressing it, the pulse at the wrist was immediately arrested. The needle was then armed with a silk ligature, and the artery was tied. One end of the ligature was left hanging from the wound, which was closed with adhesive plaister. At the time when the nerve was drawn aside, the patient complained of a pain in the elbow, which soon ceased after the operation. The bulk of the tumor was very slightly diminished by pressure immediately after the operation, and the contents of the sac felt very firm. Very little bleeding took place during the operation, and the only difficulty arose from the depth of the artery, and the very deceptive feel communicated to the finger through the nerve which was situated immediately over the artery. It was remarkable that the pulsation was less strong when the artery was quite denuded, than when felt through the medium of the nerve. This shows the importance of proceeding with great caution in this operation—when the touch, and not the sight, must often guide us—as I felt quite confident that I had surrounded the artery, in the first attempt to pass the needle, but was soon convinced of my error by failing to arrest the pulse at the wrist when the nervous trunk was gently compressed upon the needle. I employed an unarmed needle in this case, which I always prefer, from the greater facility with which it can be passed than when armed, the wet silk often affording a considerable *obstacle*, and deceiving the operator as to the degree of resistance he meets with in passing the needle."

The operation was performed at one o'clock; at half past three a very slight

pulsation was felt at the wrist. Nothing very remarkable occurred in the pro-
gress of the case for some days; the ligature came away on the 16th day. A
short time afterwards the patient was sent into the country, where the wound
gradually closed; but the patient suffered pain in the tumour, and inflammation
took place around it, which went on to suppuration.

After some weeks' absence, he returned to the hospital to have the abscess
opened, as Mr. Earle was apprehensive of secondary hæmorrhage, conceiving
that suppuration had taken place in the cyst of the aneurism. A considerable
quantity of unhealthy pus was let out, and after some time the opening was en-
larged, and a quantity of thick matter, supposed to be laminated coagula, came
away; after which the tumor subsided, and the abscess gradually healed, leaving
scarcely any perceptible swelling beneath the clavicle. He left the hospital con-
valescent, and was soon able to return to his work. At this time the pulsation at
the wrist, in both radial and ulnar arteries, was nearly equal in strength to that
of the right side.

This patient was subsequently attacked with dropsy, and on the 2nd of July,
1835, fell a victim to that disease. "The same evening the vessels were injected
from the aorta; and on dissection it was found that the subclavian artery had
been tied upon the first rib, close to the outer border of the scalenus muscle.
About half an inch of the artery was here deficient. The proximate end of the
artery was so firmly closed, that it completely resisted the forcible injection of
the wax from the heart. The distal end of the artery was less firmly closed than
its proximate end. A portion of the artery, about an inch and a half in extent
from the distal end, was contracted, and upon its inner surface was covered by a
firmly adhering layer of fibrin. The appearance of this portion of the artery
was such as to indicate that no blood had passed through it for a considerable
period, probably since the time of the operation. Immediately beyond this con-
tracted portion of the artery some small branches arose; and from the origin of
these branches the artery was continued of its full diameter, and with its tube
quite free.

The coats of the artery were unaltered in structure.

About an inch below the clavicle, on reflecting the pectoral muscles, a tumor
was found lying upon, and in the direction of, the axillary plexus of nerves.
This tumour was oblong, full two inches in length, and about an inch and a half
in width. Its surface was white. The axillary artery was firmly united to one
side of it by dense cellular tissue. Its opposite side was more intimately con-
nected with the axillary nerves. A section of the tumour showed that it consist-
ed of a grayish dense substance, divided into separate portions by white lines
extending through it in various directions. A large nerve of the axillary plexus
was attached to the upper end of the tumour, and a similar nerve was attached to
its lower end. Upon continuing the section of the tumour into the two portions
of nerve just mentioned, appearances presented themselves of the nerve at each
end of the tumor being here split into filaments, some of which extended upon
the surface of the tumor, others into its interior.

The arm had been nourished by the blood which passed into the axillary artery
through the anastomoses which existed between the supra-scapular and infra-
scapular arteries. The transversalis colli had also taken some share in carry-
ing on the collateral circulation, and was much enlarged. Both it and the
supra-scapular were as large as the radial at the wrist, and much more tortuous
than those on the opposite side. They were given off by a common trunk from
the subclavian, at the distance of a quarter of an inch from the inner edge of
the scalenus. No inferior thyroid existed on this side; the gland received a large
right inferior thyroid, which was given off by a common trunk with the verte-
bral, presenting a very rare variety.

This case is most interesting and instructive in many points of view. It
teaches us a useful lesson of the necessity for the utmost caution before we de-
cide on the performance of so serious an operation, and the importance of at-
tending to every minute circumstance which may tend to elucidate the nature of
the case; and further, it furnishes powerful negative evidence in favour of aus-
cultation, as certainly the usual sound of aneurism was absent in this case.

It is very instructive, in proving that the subclavian artery may be tied with
impunity, even where there has been no previous enlargement, and no obstruc-

tion in the main trunk, and no previous enlargement of the collateral channels; none of that preparation which was formerly considered so essential to the successful issue of an operation. In the present case the circulation was so far re-established in two hours and a half after the operation, that the pulse could be distinctly felt at the wrist.

This latter circumstance is interesting, in connexion with the fact that there was no increased temperature in the limb after the operation. In the generality of cases, in proportion as the collateral circulation is re-established, there is an increase of temperature beyond that of the healthy limb, which increase gradually subsides as the circulation is restored in the larger vessels. In the present case the patient always complained of a sense of coldness and numbness in the limb, and frequently applied for flannel to wrap the hand and arm in, although the circulation was quite strong in both radial and ulnar arteries. There cannot, I conceive, be any doubt that this continued coldness was connected with the diseased state of the median nerve."—*London Medical Gazette, July* 11, 1835.

—

40. *Case of Crural Aneurism—Ligature of the external Iliac Artery—Cure.*—A case of crural aneurism, cured by ligature of the external iliac artery is recorded in the *London Medical Gazette,* (Jan. 30, 1836.) The subject of the case, was a footman 24 years of age, of a plethoric habit, muscular frame and unusually fat for his time of life. Whilst carrying a heavy load, his foot slipped and he was compelled to use considerable muscular effort to prevent his falling. Some time after this he perceived a small swelling in his right groin. Seven months afterwards, when admitted into the Sussex County Hospital, the tumour was the size of a hen's egg, situated an inch below Poupart's ligament, in the course of the crural artery, possessing very active pulsation: when firmly pressed upon, it could be partially emptied of its contents, but regained its original magnitude upon the pressure being removed. The circumference of the upper part of the thigh was four inches greater than that of the sound one, the limb below being increased in proportion. The integuments were of the natural colour; it was unattended with pain or inconvenience in walking; his general health was good, the heart's action regular, and the patient was wholly unconscious of labouring under a disease of importance. He was ordered spare diet, with purging and bleeding at intervals, as a preparatory measure, for three weeks, when he was considered to be in a favourable state for operation.

The operation of tying the external iliac artery was performed by Mr. TAYLER, in the following manner:—

The patient being placed in the usual position, an incision, four inches in length, was then directed, more in the course of Poupart's ligament than is usually recommended. This was found greatly to facilitate the after-steps of the operation, from the increased space afforded by the more transverse division of the abdominal parietes. The peritoneum and intestines being held back by an assistant, the ligature was passed from within outwards, the sheath having been previously opened by cautiously scratching with the ivory handle of the knife. The ligature was a single strong cord of unbleached silk. Upon tightening it, the pulsation immediately ceased. The wound was brought together with adhesive plaster, and the patient ordered an anodyne draught. He complained of numbness in the foot for several days, but there was no difference at any time in the temperature of the limbs indicated by the thermometer. It is unnecessary to give a daily report of the case. The ligature came away on the sixteenth day; from which time he progressively improved, and was discharged August the 12th. The patient remained in the hospital until he was sufficiently recovered to resume his usual occupation, the tumour having almost disappeared. I have lately heard of him; the report was, he had never been in better health; the right limb quite as strong as ever.

—

41. *On the Treatment of Hydrocele by Setons.*—By Mr. GREEN. Thomas Waterman, ætat 40, weaver, admitted into Isaac's ward, October 25, 1832. A healthy man, of regular habits: is the subject of hydrocele on the right side, which commenced, without any assignable cause, about five or six years since, and has gradually increased in size, but unaccompanied with pain.

Nov. 2nd, 1 P. M.—The operation was performed as follows:—A trocar and

canula having been introduced, about eight ounces of fluid were drawn off, and during this time the man fainted. The canula still remaining in, a needle six inches in length and as thick as a probe, with a trocar point at one end an an eye at the other end, was introduced, armed with twelve threads of ordinary seton silk, into the canula, and having been carried upwards, perforated the tunica vaginalis and integuments near the upper and fore part of the swelling, and was drawn out by that aperture. The canula was then removed, and the ends of the thread tied loosely together over a space of about two inches. After he recovered from the faintness he was sent to bed, complaining of great pain extending up the cord to the loins.

10 p. m.—The pain had become so severe, that the threads were removed, and he soon began to experience relief.

3d.—Has had a restless night; the pain still continues, but is not so severe. His bowels being costive, mist. senn. comp. was ordered.

4th.—Slept better last night, the pain having subsided during the course of the evening; bowels open; complains of thirst; pulse soft and quick; has no appetite. There is slight heat and redness of the scrotum.

5th.—The swelling of the scrotum increasing, but the heat much diminished.

6th.—The scrotum is now as large as it was prior to the operation.

9th.—Much the same.

26th.—Since the last report the swelling has somewhat increased in size, but in other respects he was quite well.

Dec. 7th.—Fluctuation being now apparent, though there is no transparency in the tumour, the hydrocele was tapped a second time, and about six ounces of very dark-coloured fluid evacuated; this high colour, together with the great thickening of its coverings, which has occurred since the last operation, has been probably the cause of the opacity of the swelling. Threads were then introduced as before, and the patient sent to bed.

8th.—Has slept four or five hours during the night. There is considerable redness, but not much heat, about the scrotum this morning; has pain extending along the cord when pressed; the lower part of the scrotum very tender, and he complains of pain in the loins. Pulse quick and soft; skin moist.

1 p. m.—The threads were withdrawn after *twenty-two* hours.

9th.—Passed a rather restless night. The swelling a little increased, accompanied with redness; much heat and pain upon pressure.

11th.—He has slept well; bowels open; pulse regular and quiet. The swelling much the same, but the redness rather less, and he feels himself easy.

Jan. 5th, 1833.—The swelling much diminished. Adhesion has taken place at the lower, though there is still some fluid at the upper part.

Feb. 5th.—Was discharged. For some time previous to his leaving the house, he rubbed ung. iodinæ on the scrotum, which certainly caused partial absorption of the remaining fluid.

 * * * * * * * *

The foregoing cases are intended as illustrations of a plan of treatment, which, although not altogether novel, may, perhaps, be deemed an improved method of effecting the radical cure of a hydrocele.

The object of the radical cure is that of causing such a change in the tunica vaginalis as will prevent the re-accumulation or re-production of the fluid. I use the term "change" advisedly; for though it is generally stated that the object in a radical cure is to obliterate the cavity of the tunica vaginalis, by causing adhesion of the sides of that membrane, a preparation in the collection of this hospital exhibits a tunic, taken from a person in whom the radical cure was effected by injection, and in whom, after this operation, no fluid was re-produced, with the cavity as perfect as it might be in the healthiest person. Here the change must have been produced by some alteration of the surface; and I can very well conceive that a slight inflammatory action may take place, so as to close the exhalent arteries, and to prevent them afterwards from pouring their secretion into the cavity, or, at any rate, so as to close a sufficient number of them to prevent any redundancy of the secretion. I very strongly suspect that in many instances of the radical cure of hydrocele no more has been done than you see in this preparation; and, indeed, I think you will agree with me, that if we could always hit the production of that quantity of inflammation which should produce

this, and no more, it would be a better plan of treating the complaint than that of causing the obliteration of the cavity. But unfortunately, under all the plans of treatment hitherto adopted, the quantity of inflammation cannot be regulated; unless, indeed, in the cases above cited, a method is offered which may, in some measure, supply the defect, and aid us in adjusting the requisite degree of inflammatory action.

* * * * * * * * *

Now, generalizing these facts, the results of the above and other cases, I may venture, perhaps, to say that the plan of treatment is well adapted to answer the end for which it was intended. In two instances, indeed, the operation failed from the want of a sufficient degree of inflammation, but which simply depended upon the insufficient irritation of the seton threads.

In another case there was a slight suppuration of the cellular membrane of the scrotum, which, however, only interfered with the rapidity of the cure, but was in no other way detrimental to the patient. In another case, however, there was excessive inflammation and a suppurative process in the tunica vaginalis; and the possibility or probability of this occurrence is perhaps the most serious objection to the operation proposed which may be gathered from these cases. It might, indeed, raise in the mind a doubt on the principle itself of the operation. You introduce an extraneous body into the tunic, and you allow it to remain till inflammation is produced, and it is possible that the inflammatory action excited by extraneous bodies may tend to the suppurative instead of the adhesive form of inflammation. As, however, this result was only observed in one case, and as no such disposition was manifested in a number of cases, of which the success was perfect, we are perhaps warranted in drawing a conclusion generally in favour of the effects of the seton. Of course future cases (and as I shall continue to adopt the same plan of treatment such will not be wanting) will decide the point; but otherwise, in respect of having a mode of treatment enabling us to regulate the degree of inflammation, the plan here offered presents great advantages.

I should state that the requisite degree of inflammation is one which is attended with the ordinary symptoms of that process; that is to say, pain, heat, swelling, some redness, and some constitutional affection. There should be, I think, some affection of the pulse, some indication of febrile action in the system, before the seton is withdrawn. As soon as this has been observed, the threads may be removed, and I believe that you may then expect that you have excited inflammation enough to cure the disease. So that it is not whether the seton has remained in ten, twelve, or twenty hours, for this must be regulated by circumstances, but it is whether the requisite degree of inflammation is produced. I should say that twenty hours was about the average time for the seton to remain; but it will vary in different instances.

I might likewise observe that this plan of exciting inflammation by a seton will answer your purpose in various other cases. Ganglions, which you cannot get rid of by bursting them under the skin, or by puncturing them with a surgical needle, and which it would be dangerous to remove, also enlarged bursæ, may be treated by a seton in the same way. Inflammation being excited, and the surfaces of these cysts brought into contact, you obtain adhesion and cure the disease;—I have done it repeatedly. I might speak of its efficacy too in that case which by some has been called hydrocele, or dropsy of the thyroid gland. I was consulted respecting a large swelling in the neck of a lady, which was evidently situated in the thyroid gland. I found that she had had a great deal of surgical advice, and that many plans had been adopted but without success; I had no inducement, therefore, to go through the same routine of remedies. On making an accurate examination, it appeared to me quite clear that there was a cyst containing fluid; and considering it a fit case for the use of the seton, I introduced a canula, by means of a trocar, for the discharge of the fluid. I then carried a seton through the cyst, and allowed it to remain till what I considered a requisite degree of inflammation had been produced. The result shortly was, that she became completely cured, and remains well to this day. So that this is a plan of treatment which may be adopted in cases similar to hydrocele, where you wish to excite adhesive inflammation, and where you wish to have some mode of regulating the degree of inflammation required.—*St. Thomas' Hospital Reports*, No. 1. Nov. 1835.

44*

42. *Partial Amputation of the Foot and Hand.*—It appears that Mr. Whatton in his memoir on partial amputation of the foot, communicated to the British Association, (see No. XXXIV. p. 524, of this Journal,) claimed the merit of having revived if not originated the operation of a partial longitudinal, instead of a complete transverse amputation of the foot; and that this claim was not only admitted by the medical section, but the pretended discovery considered so novel and important, that a vote of thanks was bestowed upon its supposed author. In our preceding No. (p. 242.) we quoted some remarks of Mr. Syme on this subject; these with the following extract from a memoir recently read before the Glasgow Medical Society, by Dr. John Macfarlane the distinguished senior Surgeon of the Glasgow Royal Infirmary, will place the claim of surgeon Whatton in its true light.

" The propriety of attempting to save a part of the foot or hand, in cases of in-jury or disease, by having recourse to partial amputation, has been long known and acted upon, both in this country and on the continent.

Garengeot, prior to the year 1720, when the first edition of his " Traité des Operations" was published, amputated a part of the foot for gangrene, and re-commends a similar procedure in every case to which it may be applicable. He also practised the removal of single metatarsal bones for caries, by a partial longitudinal, instead of a complete transverse section of the foot. M. Le Dran removed diseased metatarsal and metacarpal bones, with their corresponding toes and fingers.*

In the year 1636, Heurnius excised with success the cuboid and third cunei-form bones, showing at a still earlier period, that the principles which at present guide us in preserving sound portions of the foot and hand, were then understood and practised.† M. Moreau de Bar, in a case of diseased foot, excised the cuboid and third cuneiform bones, a part of the os calcis, and the posterior half of the fifth metatarsal bone.‡ B. Bell distinctly recommends amputation of the diseased parts alone, where all the metatarsal bones are not affected, even " should we be obliged to remove them all except one or two.§ Hey narrates a case of caries, in which he amputated the 3d, 4th, and 5th toes, with their metatarsal bones, the greater part of the cuboid, and a small portion of the astragalus.‖   Sir Charles Bell describes the operation of excising metatarsal bones, and says " the careful and nice extraction of the spoiled bones from the hand or foot should be oftener done than it is."¶   Sir A. Cooper in his valuable work on Dislocations, relates an interesting case of injury of the hand, where the fore-finger alone was preserved, which was afterwards found to be of great use to the patient.** Simi-lar partial operations were also performed by Baron Larrey, in cases of gun-shot wounds. Guthrie recommends, in similar circumstances, the preservation, when-ever it is practicable, of such of the metatarsal and metacarpal bones, with their toes and fingers, as may be uninjured.†† Hennen, whose authority is highly respectable, says, " cases will occur, where the hand or foot are only partially injured. By taking advantage of the joints and sound teguments, we may suc-ceed in saving the limb.‡‡

In the year 1823, Mr. Key, surgeon to Guy's Hospital, performed partial am-putation in a very interesting case of injury of the foot. All the toes, with their metatarsal bones, except the great toe, were removed, along with the middle, ex-ternal, and cuneiform bones, a sound flap having been obtained from the plantar surface of the foot.§§

In this city, within my own observation, which extends to a period of more than 20 years, I know that when similar cases occurred, the practice has been adopted by almost every surgeon who officiated in our Infirmary, and by many private practitioners: and I have reason to believe that the importance of the

* See the Operations in Surgery, translated by Gataker, 4th edition, 1773; also Observa-tions in Surgery, translated by Jurgeon, 3d edition, 1758.
† Velpeau, sur la Medecine Operatoire, tome I.
‡ Velpeau, ut citat.
§ System of Surgery, 7th edition, 1801.
‖ See his Surgery, 2nd edition, 1810, p. 55.
¶ Operative Surgery, vol. 1st, 1807. See also, Illustrations of the Great Operations of Surgery, London, 1821.
** Fourth edition, p. 482.
†† On Gun-shot wounds. London, 1815.
‡‡ Military Surgery, 1818, p. 288.
§§ Averill's Operative Surgery, 3d edition, 1830, p. 227.

treatment has been inculcated, and the different operations exhibited on the dead body, from year to year, to the pupils of our medical schools, by more than one of our surgical teachers. This statement will, I feel assured, be confirmed by the members of this society, many of whom have been connected with our Infirmary for years, and who, besides having had intimate acquaintance with the prevailing practice of the place, are so well qualified to estimate the correctness of these observations, and of others which are to follow. In fact, the propriety of the practice has been so long known, and so generally, I may say, universally, acted upon in this city, that many of the gentlemen who now hear me may deem these remarks and historical data superfluous."—*London Medical Gazette, 30th Jan.* 1836.

43. *Extirpation of Goitre.*—M. Rufz, has reported in the *Archives Générales* for Jan. last, a case in which M. Roux performed this operation. The patient died 56 hours after the operation.

MIDWIFERY.

44. *On the Death of the Fœtus in the first months of Pregnancy, the Uterus preserving the product of Conception.*—Chevalier Gennaro Galbiati, communicated to the Medico-Chirurgical Society of Naples, at their meeting 29th Nov. 1834, an interesting memoir on this subject which is particularly interesting in connexion with the recent discussion which took place at the French Academy of Medicine, upon an analogous subject.

It has often been observed that in the last months of pregnancy the fœtus ceasing to live by some cause, may remain many weeks and even months in the uterus. But those cases have not equally been studied in which, the fœtus having died during the first months, the uterus has preserved for a certain length of time the product of conception; these have been considered as aberrations of nature, but the symptoms for determining this state, and the indications for its treatment, have never been sought for.

Observations 1.—The marchioness of M. the mother of several children, had some years since indications of pregnancy. Dr. Galbiati examined her at the third month, and believed himself warranted in asserting that she was pregnant. At this epoch, in consequence of a moral cause, traces of blood showed themselves in the genital organs, and afterwards evident signs of approaching abortion made their appearance. Opportune means prevented the abortion, and the lady escaped with a slight loss of blood continuing about ten days.

Dr. G. examined her again at the fourth month. The uterus presented only the same volume as at the former time, which led him to consider her pregnancy as doubtful. Nothing new occurred during the fifth month. At the sixth month, another moderate discharge of blood took place, lasting five or six days, the uterus had a volume equal to that of the preceding month, but less than he had observed at the third month.

At the seventh month there was a recurrence of the bloody discharge, but more abundant and accompanied with pains, which two days afterwards, produced the expulsion of a fleshy, fresh, and organized body, offering an interior cavity in which the fœtus was found shrunk and atrophied as if it had been plunged into alcohol, and which appeared to be a little more than two months old. The fleshy body was formed by the membranes and the placenta, the latter scarcely visible, as distinct as it usually is in the first periods of pregnancy; the membranes were thicker than ordinary, and the deciduous membrane of Hunter was particularly remarkable, it was pulpy, vascular and villous.

After the expulsion of this body, the discharges and the pain moderated for some days, but afterwards these two symptoms augmented; the pains were incessant, the discharges continued, and it was feared that the neck of the uterus would become fungous. It was not until the end of a year of pains and hæmorrhages, and with the aid of large doses of cicuta, of the tincture of guaiacum in lime water, and astringent injections, that the patient was completely restored and became again pregnant, and was delivered of a daughter who is still living.

Observations 2.—The wife of Chevalier M., the mother of several children, supposed herself pregnant for the third time. At the end of the third month Dr. G. examined her, and found the uterus enlarged to the size of a moderate orange, and beginning as in the former case, to extend above the pubis, was assured of the truth of her pregnancy.

At this time, she fell from a carriage, the uterus partially opened and allowed a little blood to escape, but without pain. An abortion was feared; but quiet, bleeding and refreshing drinks taken at a low temperature re-established her health at the end of a week, and every thing went on well to the fifth month, the abdomen increasing by degrees, and in a sensible manner.

At the sixth month, without an apparent cause, the uterus again opened and blood escaped. Dr. G. examined her, and observing that the uterus far from having the usual volume at six months, scarcely retained that which he had found at the end of the third month, he asserted that pregnancy did not exist or at least it had made no progress; an assertion which appeared a paradox to the family and to the assisting physician.

At the seventh month there was another flow of blood equal in quantity and duration to the preceding; on touching, Dr. G. satisfied himself again that there was no sensible developement of the uterus and consequently that there was no pregnancy.

In the course of the eighth month, the lady, following his advice, had resumed the regimen which had been forbidden by the other physicians from fear of abortion, when one day having used rather freely this permission, the uterus opened and a discharge took place, in consequence of which a fœtus, shrivelled up, appearing about the age of three months, was expelled, enclosed in a fleshy, fresh envelope, formed of membranes which were twice as thick as usual, and principally by the deciduous membrane of Hunter which was fleshy and villous.

This lady soon recovered; she was put on the use of the chalybeates, and since then has had other regular pregnancies which have gone to the full period.

Observations 3.—La Marchesina G., of an irritable, nervous temperament, after her marriage had suffered much from diseases of the nerves; she had been cured when for the first time symptoms of pregnancy showed themselves, in the summer of 1834. For two months she had not been regular, when she was suddenly seized with a very painful sensation in the right ear, as if a fly had got into it, and this sensation increased to such a degree, that it induced delirium; nothing could calm her but the most copious bleeding; this singular affection remained for several days, when at length it passed off of itself.

Chev. G. examined this lady a little before the end of the third month, and, finding the uterus sufficiently developed, but not yet arising to a level with the pubis, he did not hesitate to confirm the existence of pregnancy. The abdomen continued to increase during the fourth and fifth months. At the sixth month, without sufficient cause, there were for four or five days, traces of a bloody discharge. On examination, he found that the uterus, far from having increased its volume, was even less than he had observed at the end of the third month. From that time he announced that the pregnancy had made no more progress; and as there existed some tension, with sensibility of the abdomen, he prescribed a bath daily, particularly as the season was very warm. At the seventh month, other traces of blood having appeared, with pain and tension of the abdomen, he examined and entirely convinced himself that there were no longer any signs of pregnancy. The pains increasing daily, he ordered the bath more frequently, which caused the expulsion of a fleshy body, containing in its interior a small fœtus, of the size of the fruit of an almond, consequently being younger than three months, a little macerated, but still preserving the umbilical cord. The membranes which formed this fleshy envelope were more than double the thickness usual at that period; and the deciduary membrane of Hunter appeared to form the greater part of it.

A few days afterwards the lady was restored to perfect health; he put her on the use of the chalybeates, and she is now again pregnant, and pregnancy is advancing with regularity.

In all these cases, continues the author, pregnancy has existed in its integrity for a certain time, then the fœtus has died, and the membranes have continued

to live; but they have ceased to increase. This is shown by the diminution in the volume of the uterus from the time of the death of the fœtus.

"The fœtus being dead," observes Dr. G., "after some weeks or months of rest on the part of the uterus, this organ commences to open, and menstruation to reappear, which arises from the membranes beginning to be detached. The blood carried by the menstrual plethora not being consumed by the uterus, and the membranes not being able to increase, it escapes from the exterior; and I have always observed that the flow is less copious than in ordinary menstruation; as the internal surface of the uterus which allows it to transude is to a great extent occupied by the adherence of the ovum. For the same reason the uterus cannot unload itself completely of the superabundant blood; hence the engorgement of its vessels and the diseases which may arise from this condition, of which we have noted an example in the first observation.

This destruction of the fœtus is probably not a very rare circumstance,—we have remarked it in three cases. It is quite possible that it may have frequently occurred, but escaped our attention. Who knows how frequently a false pregnancy has been mistaken for an abortion of a recent and irregular one? or how often physicians have been mortified by confirming a pregnancy in which they have been believed to be mistaken! This has probably often been the unknown cause of dangerous uterine hæmorrhages, as was the case in our first observation.

Until now, similar facts, ascertained after the event, have been lost to science, as no means were furnished of recognising them from the commencement. Thus, M. Lobstein reports the case of a woman who, at six months, expelled an entire ovum, without any fœtus. It was presumed that she had rejected it at three months, during a slight bloody discharge. This ovum or these membranes were of a thickness more than double their ordinary size. What advantage can we derive from a similar observation? We may, however, conceive what an advantage a precise diagnosis would be, by which this affection might be distinguished from false pregnancies, from menstrual plethora, and the other disease of the uterus.

When about the end of the third month of conception, beside the equivocal signs of pregnancy, the uterus has certainly acquired the volume of a moderately sized orange, and commenced to pass above the pubes, when, after some cause capable of influencing the pregnancy, the uterus partially opens and allows some blood to escape, particularly if no germ or any thing of that appearance has been seen to escape; when afterwards the uterus remains undisturbed for some months, or, more frequently, when the menses come on at their regular time, but always less profuse than customary; when, in fine, the uterus examined, after some months, is found to be of a less volume than it was at the third month, death of the fœtus has occurred, and the ovum is still retained within the uterus. Not a long time since, supported by the authority of these symptoms, I did not hesitate to prognosticate to Madame M. that she was carrying a dead child. I await the result of this prognosis.

We should always be certain that the volume of the uterus, at the end of the third month, which constituted the most certain sign of pregnancy, depends solely and truly upon a true conception, and not upon any other morbid cause; but the practitioner should not be deceived; for the augmentation in the volume of the uterus has signs peculiar and distinct from those of pregnancy, and which it would be useless to relate here.

The diagnosis being formed, art should seek for means to free the uterus from a guest at once inconvenient and dangerous.

To produce this expulsion, the general warm-bath has appeared the best and least injurious means. Heating emmenagogues are here to be feared, as, by determining too great an afflux of blood to the womb, they might cause dangerous hæmorrhages. The martial preparations appear to us to be more useful, particularly when united to some bitters, to excite the vitality of the stomach and bowels, and in joining to them a regular regimen and moderate exercise, according to the strength of the patient.

When the expulsion has taken place—when the brief puerperal fever which is the consequence of it has terminated—when there is no suspicion of the existence of any virus, we have prescribed perseverance in the use of some preparation of iron, so as to destroy the morbid habit which the uterus easily contracts, and

which might reproduce the disease; and, if circumstances are favourable, we use hot mineral baths. Every consecutive disease of the uterus requires, besides, an appropriate treatment."—*Gaz. Méd. de Paris*, 8 *Aug.* 1835, *from Osservatore Medico.*

45. *Case of Morbid adhesion of the Placenta.* The *Medical Quarterly Review for July* last, contains the following interesting example of this, communicated by Dr. Litchfield.

"Mary Farrell, ætat. 32, was attended in her first confinement by Mr. Barry, of Judd street, Brunswick square, in March last.

"The labour, as described by Mr. Barry, was very lingering, the pains slight, and at long intervals. Sixteen hours after the commencement of labour, the accoucheur in attendance administered half a drachm of the powdered ergot of rye, and this dose was repeated every two hours; at the expiration of twenty-four hours, a dead child was expelled, and the uterus contracted forcibly round the placenta, so as to baffle the repeated efforts of the accoucheur to remove it.

"On the morning of the 12th March, eighteen hours after the delivery of the patient, I was requested to see her in consultation. The uterus was found, upon examination, high up beneath the abdominal parietes, and contracted at its fundus into a hard and irregular tumour. The external parts of generation were swollen and painful, and the os uteri so rigid and unyielding as to resist the persevering efforts of the hand to dilate it and reach the placenta.

"The pulse at this period was full, hard, and at ninety-five; the tongue furred and feverish, the face flushed, and the patient complained of severe pain in the head; to relieve these symptoms, and lessen the force of the muscular contractions, I ordered ten ounces of blood to be taken from the arm, and prescribed small repeated doses of tartarised antimony; fomentations with flannels were also applied freely to the swollen pudenda; under this treatment the violence of the symptoms subsided, and fresh and long-continued, but unsuccessful attempts were again made, to dilate the os uteri, and detach the placenta.

"During the latter months of pregnancy the patient had complained of fixed pain in the womb, arising, as she believed, from a blow in the abdomen; it seemed probable, under these circumstances, that the vessels of the uterine structure being stimulated to undue action, had thrown out coagulable lymph, by which the placental and uterine surfaces had become morbidly united. Being of opinion that it would be impossible, in the present state of the parts, to reach and overcome this adhesion, and having no fear of immediate hæmorrhage, I resolved to wait, and watch closely both the local and constitutional symptoms, abstaining for the present from further manual interference.

"In this way the case continued to progress until the fourth day, the patient remaining in a very satisfactory state. On the fourth day after delivery the discharge, which had set in as usual, became more copious in quantity, of a green colour, and very offensive smell; this last character was in some degree corrected by the use of injections of chloride of soda, and the patient went on, without any unfavourable symptom, till the ninth day, when a portion of the placental mass, equal to about one-third of its usual weight, was thrown off in a state of putridity. From this period, small portions of the placenta continued to detach themselves at intervals, until the twenty-first day, when all that remained of the adherent structure was thrown off.

"The progress of the case was unattended with pain or hæmorrhage; the patient improved rapidly during the time in spirits, strength, and appetite, and at the end of a month from her delivery, menstruated in a regular way. Strong cartilaginous bands were found in the placental mass."

AMERICAN INTELLIGENCE.

—

Three Cases of Rheumatic Ophthalmia, treated at the Wills Hospital. By Isaac Parrish, M. D., one of the Surgeons of the Institution.—Case I. John Scott, labourer, aged about 27 years, admitted 2nd mo. 25th, 1836, reports that he has been subject to attacks of rheumatism in the limbs for some years past. About a month since, he was attacked with severe rheumatic pain in the lower extremities, in the shoulder, and in the nape of the neck. This continued for about two weeks, when the pain suddenly left the affected parts, and, for the first, time his eyes became affected. He was seized with severe pain over the eye brows, which he states was most violent during the night, and was attended with inflammation of the eye, dimness of vision, and intolerance of light.

Present state.—Right eye highly injected, the redness being zonular, and seated in the sclerotic coat. The conjunctiva but slightly inflamed; cornea clear; left eye inflamed in a less degree. The patient suffers severely from suborbital pain; sleeps but little; pulse active; skin hot and dry, more particularly at night, when the pain is severe.

On the evening of admission, he was directed the following:—℞. Calomel, grs. xvj.; ipecac. pulv. grs. viij.; opii pulv. grs. iv. M. ft. pulv. No. IV. One to be taken every night. Sulph. magnes. ℥j. every morning.

26th. Was much relieved by the powder, perspired freely during the night, and slept better than usual; inflammation slightly diminished; less suborbital pain.

29th. Complains of acute pain and stiffness in the muscles of the neck, and about the shoulders; less inflammation in the eyes; bowels opened freely by the medicine; perspires freely at night, and continues to sleep better. Continue powders, and apply a blister behind each ear.

3d mo. 1st. Inflammation of the eyes still diminishing; pain and stiffness in the muscles of the neck; shoulders, &c. increasing. Continue powders. V. S. ℥xij.

2nd. Was much relieved by the bleeding; inflammation of the eyes slight; but little suborbital pain; observed slight irregularity of the pupils.

4th. No pain or inflammation in the eyes; pupils still irregular. Discontinue powders. ℞. Syr. sarsap. comp. a table-spoonful three times daily.

13th. Has had no return of inflammation in the eyes; vision good; pupils still irregular, though the iris acts vigorously, under the impulse of light. Still complains of rheumatic symptoms about the nape of the neck, shoulders, &c. These symptoms detained him in the house for some weeks, although he had no return of inflammation in the eyes.

He was discharged, cured.

Case II. S. Kaminski, a polish exile, aged about 23 years. Admitted 2nd mo. 1, 1836. States that about six weeks since he left New Orleans, where he had experienced an attack of fever. On his recovery, he was affected with a pain in the head and limbs, which has been aggravated by exposure to the damp and cold, on his journey to Philadelphia. About three weeks since, he was attacked in Cincinnati with severe inflammation in the right eye, attended with shooting pains in the temple, and a sensation of pricking over the eye brow. The pain was more violent towards evening, and during the night preventing sleep. Exposure to light is very painful.

On admission, he was affected with these symptoms; the vessels of the sclerotic coat and conjunctiva, were highly injected; the nocturnal pain very vio-

lent; the condition of the iris could not be ascertained, owing to the injection of the vessels covering the cornea. But little had been done for these symptoms, and the patient had been almost constantly exposed to the cold since his attack.

Three cups were directed to the temple of the affected side, and the following powder. Calomel, grs. v.; pulv. opii. grs. ij.; pulv. ipecac. grs. ij., every other night. Low diet; exclusion from light.

2nd. The patient experienced some relief from the remedies.

Directed ol. ricini ℥j.; pulv. doveri, at night.

℞. Sulph. morph. gr. ij.; mucil. medull. sassafras ℥vj. To wash eye. The Dover's powder to be alternated with the calomel, &c.

6th. Inflammation of the eye still severe; suborbital pain continues. Directed V. S. ℥xvj.; blisters behind the ear. Continue powders. Give senna tea in the morning.

8th. Was relieved by the bleeding and blistering, though the inflammation and pain are still considerable. Continue powders every night; bowels have been freely opened by the medicine.

10th. The patient still complains of severe suborbital pain; vessels highly injected. V. S. ℥xij. Continue powders and senna tea.

20th. Eye nearly free from inflammation, though the patient still complains of occasional pain in the temples. He was directed to omit the medicine, and keep up the discharge from the blisters.

25th. Slight irregularity of the pupil was observable; eye nearly free of inflammation and pain; vision obscure; objects appear involved in a mist. Directed extract of belladonna to be applied to the lids at night.

3d mo. 2nd. Irregularity of pupil more evident since the application of belladonna; vision very imperfect. The patient informed me that he had been affected with syphilis about six months ago, which was cured, as he believed, with mercury. He has had no eruption or sore throat since. The present condition of the eye induced a suspicion that this circumstance might have an influence in modifying the case. Directed syr. sarsap. comp. a table-spoonful three times daily. Mass. hydrarg. grs. v., every other night. Under this treatment his vision rapidly improved, the iris was restored to its natural shape, and he was discharged cured.

CASE III. Rosanna M'Donnald, aged about 35. Admitted 2nd mo. 25th, 1836. Has been subject to attacks of rheumatism every spring and autumn, for several years past. Last spring the disease attacked her eyes for the first time. She was confined to a dark room for about two months, and took a variety of remedies, by which she was relieved.

About three weeks since, her left eye was attacked with inflammation, attended with severe shooting pain in the temple and over the eye-brow; for a time the disease almost disappeared in the left eye, and attacked the right. On her admission, both eyes were involved, the left being the principal seat of inflammation. The peculiar character of inflammation of the sclerotic coat was very evident; the vessels of the conjunctiva were very slightly injected, so that the radiated inflammation of the sclerotic was very distinct. The patient complained very much of pain in the eye-brow, extending to the temple, cheek, and upper jaw, confined chiefly to the left side; slight haziness of the cornea and pupil. Patient has not menstruated for six months.

She was directed a pill of calomel grs. ij.; pulv. opii. gr. j. at night; sulph. magnes. ℥j. in the morning; to bathe temples with laudanum; low diet; exclusion from light.

29th. Much improved; less nocturnal pain; says she experiences great relief from bathing with laudanum; inflammation declining; sleeps better; bowels have been freely opened, and she perspires freely at night.

Discontinue pills. Give pulv. Doveri grs. x. at night.

3d mo. 2nd. Pain in the head aggravated, owing to the retention of the menstrual discharge, this being the regular period.

4th. No inflammation or pain in the eyes; complains of stiffness of the muscles at the back of the neck; gums sore; continue Dover's powder; pyrol umbellat. decoction, a pint daily, to be increased to a quart. Under this treatment she entirely recovered; menstruated at her next period. Discharged on the 10th.

Case of Traumatic Tetanus, successfully treated. By H. Dorsey, M.D., of Clarke County, Virginia.—A negro girl, aged 15 years, of strong constitution and great muscular strength, on the 20th of March last, was attacked with slight spasms of the inferior extremities, and considerable rigidity of the dorsal and cervical muscles, which continued a few hours, and then entirely subsided; but, on the succeeding morning, returned with increased severity, and continued to recur at intervals of from five to six hours, gradually increasing in frequency and intensity, until the 26th, when I was called, for the first time, to visit her, and fortunately found her in one of the paroxysms, or, as she expressed it, "one of her spells." Upon examination, there was found to exist recurvation of the body; rigidity of the muscles of the dorsum and cervix; stiffness of the lower extremities; considerable impairment of the action of the jaws; anxiety of countenance; no derangement of the mind; tension and frequency of the pulse. One drachm tinct. opii was immediately administered, but the symptoms continued unabated for an hour, (during which time I remained with her,) when they began to decline. By this time, I was brought to suspect that it was a case of tetanus, (of that variety called opisthotonos,) which induced further inquiry, the result of which was the information that, about ten days previous, she had trodden on a pot-hook, deeply puncturing her foot about midway.

All doubt was now dissipated, and I no longer hesitated to consider and treat it as a case of tetanus, although entertaining little or no hope of recovery. Having seen in a number of your Journal (which I take) a plan of treatment recommended by Dr. Harris of your city, which seemed reasonable, and knowing it to be of high authority, I determined to be chiefly governed by it. Accordingly, sixteen ounces of blood were abstracted from the arm, which produced some relaxation; another ℨi. tinct. opii was ordered, and the same quantity directed to be continued every four hours, until relief should be obtained. This prescription was faithfully attended to, as I learned the next morning. The puncture was examined, and found to be almost entirely healed; the thick skin, notwithstanding, was removed, and the cavity thus made filled with blistering ointment, which produced some soreness and suppuration.

The next morning, being the 27th, I saw her very early, and, upon inquiry, learned that after the fourth dose of laudanum, she expressed relief; the medicine was discontinued for eight hours, when the symptoms returned with such violence as to make those about her expect her dissolution every minute. The laudanum was resumed, and continued in the same quantity and at the same intervals, until morning. Upon examination, I found her evidently much worse than on the preceding day; pulse frequent and weak; the body rigidly recurvated; a lancinating pain shooting from the lumbar region to the scrobiculus cordis; furred tongue; motion of the jaws almost entirely suspended. An attempt was made to cup the spine, but without success, (in consequence of a deficiency of blood, I suppose, occasioned by the rigidity of the muscles refusing free ingress to it.) Three hundred drops of laudanum were given, and this quantity directed to be continued every four hours, until relief should be had. The second dose relaxed the muscles, freed her of pain, and induced several hours perfect repose. At 8 o'clock, P. M., the suffering returned with greater intensity; three hundred drops more of laudanum were given, and repeated in three hours thereafter, which procured sleep that continued until morning. Her

No. XXXVI.—August, 1836. 45

bowels not having been operated on, 15 grs. cal. and 30 jalap were ordered, which produced several copious dejections.

28th. The symptoms the same as those of yesterday, except that the pain extending from the sacrum to the ensiform cartilage, had increased in intensity and was of more frequent occurrence, and the pulse became more feeble and quick. Three hundred drops of laudanum directed every three hours; the fourth dose occasioned repose.

29th. Considerably improved; pulse full and soft; skin moist; tongue thickly coated with a brown moist crust; stiffness and pain diminished; slight mercurial action, as evinced by the mouth; 3i. tinct. opii directed every four hours, unless the symptoms became more alarming, in which case the three hundred drop doses were to be resorted to, and continued at the intervals of yesterday. About 12 o'clock at night, the suffering became very intense, and the latter doses were returned to, as directed. After taking the third dose, she fell into a profound sleep, which lasted eight or nine hours, when she awakened, and expressed herself much relieved.

30th. No improvement in her condition, compared with that of yesterday morning; the prescription the same with that of yesterday; six hundred drops composed her; ol. terebinth. directed to the spine.

31st. Symptoms more unpromising; pulse very quick and feeble; tongue with a hard brown crust; spasms of the extremities more violent and frequent; more rigidity of the muscles of the back; and greater recurvation of the body; pain frequently shooting from the dorsum to the sternum; obstinate constipation of the bowels; delirium; all hope abandoned; three hundred drops of laudanum were directed every two hours; three doses afforded relief, and induced sleep; blistering ointment directed to the spinal column from the coccygis to occiput, (in consequence of the body being greatly flexed backward, there was a furrow extending the whole length of the spine, which was filled with blistering ointment,) which produced a great degree of vesication and suppuration; at night two doses (or six hundred drops) more were taken at the same intervals; stimulating enemata were ordered, which produced the desired effect.

April 1st. Symptoms promising; pulse less frequent; tongue soft, but much coated; she had slept well during the night: considerable stiffness and torpor of the whole system; delirium not so great; for the first time asks for something to eat; molasses and mush directed as diet exclusively. A pill composed of camph. 5 grs.; opium 3 grs. was prescribed every four hours; after taking four of these, she was much improved; the stiffness diminished rapidly; the skin became soft and moist; delirium almost entirely gone; pains recurred at longer intervals and with less severity; two more pills were taken during the night.

2nd. Much improved in every respect; had slept well, and disposed to eat every thing that presented; the same pills directed at the same intervals until sleep should be procured; after the second one, she slept sweetly and soundly about 10 hours.

3d. Not so well as yesterday; complains of more pain and stiffness, especially of the jaws; some delirium; no appetite; one of the pills directed every two hours; the third afforded relief.

4th. Considerably better in all respects, yet unable to stand alone; she had rested well; desires to eat every thing that presents; the same pills ordered every 4 hours through the day; but, in consequence of sleeping frequently, but two were given; pulse becoming natural.

5th. Convalescing rapidly; tongue cleaning; appetite improving; can stand with little assistance; one pill ordered every six hours, and, intermediately, 5 grs. of the blue mass.; generous diet.

6th. Convalescing; appetite good; can stand alone; no medicine ordered.

7th. Still improving; pulse almost natural; walking about without assistance; thirty drops laudanum acetated, ordered at night.

16th. Almost entirely restored; directed nothing. I have frequently heard of her convalescency since, and to-day learn she is completely restored to health.

Remarks.—Although the above case does not incontrovertibly establish any important pathological fact, yet I am decidedly of opinion, that spinitis existed, and that the spastic action was referrible to it; and among the reasons upon which this opinion is based are the facts, that, until after the establishment of extensive irritation, and profuse suppuration along the spine, there was no perceptible convalescence; and these were observed to progress proportionally. One or two therapeutical facts, however, have been rendered extremely probable, if not established by this case. The first and most important one is, that the apprehensions hitherto entertained concerning the deleterious effects of opium, when taken into the stomach in large quantities, are in a great degree, if not entirely unfounded; for it must be recollected that all the opium employed in this case was exhibited by the mouth. Nine hundred drops of laudanum having been taken on the 31st of March, in the course of six hours.

And the second is, that great importance may justly be attached to opium in tetanus; for without this article every case would terminate in death long before the spinal irritation and inflammation could be subdued by any depleting measures, however active and energetic. But, while I ascribe so much value to opium, camphor, in my judgment, is entitled to not a little in removing that torpidity of the system which is consequent upon tetanus, and especially that insensibility of the stomach so generally observed after the administration of opium.

As regards topical remedies, when practicable, (which is not always the case,) I should prefer cupping to take precedence to blistering, regarding both as of great importance.

Case of Poisoning with Arsenic. By Dr. JACOB T. B. SKILLMAN, of New Brunswick, N. J.—I was called to see Jane B. a native of this place, aged 21 years, at eight o'clock in the morning of the 27th of April, 1836. On my arrival, I was informed by her mother that she had taken sixpence worth of arsenic, or half an ounce, as I afterwards learned from the apothecary who sold it to the patient. Her mother handed me the papers in which it had been put up, and which showed very evident marks of having contained the poison, from the colour left upon the inside paper. She informed me her daughter had taken the whole dose the previous evening, about twilight; that it soon produced emesis and catharsis, which continued frequent through the night. On examination, I found her pulse 140 in a minute, and irregular; she complained of much pain in her head, throat and stomach; fauces appeared much swollen and red; eyes considerably inflamed; frequent sighing. Although somewhat reduced and exhausted by the action of the poison upon the stomach, I immediately took from her arm about twenty ounces of blood, which I thought had some effect in producing more regularity in her pulse, and would perhaps reduce the inflammation of the alimentary canal. I was also informed that her dejections appeared to contain a considerable quantity of the poison, in an undissolved state. I directed, after bleeding, an ounce of castor oil every third hour, and a wine-glassful of a solution of an ounce of epsom salts in a quart of soapsuds, every intervening hour, until it should act freely upon the bowels; this last solution to be given lukewarm.

At six o'clock, P. M., I found that she had rejected the most that she had taken, and that the operation upon the bowels was very scanty; pulse more frequent; complained of more pain in the stomach; ordered the medicine in smaller doses, and continued through the night until it should produce the desired effect upon the bowels.

At eight, A. M., on the 28th, her bowels had been freely acted upon by the medicine; stomach appeared less irritable; complained of more pain in the fauces, throat, and stomach. I prescribed leeches to the throat and stomach.

At six, P. M., pulse more frequent, and an ash coloured appearance of the

centre of the tongue; edges much reddened by inflammation; complained of much pain throughout the system, with great and incessant itching of the skin; some tenesmus and strangury; directed her to take a solution of tart. antim. and spt. nit. tea-spoonful every hour, until the excitement abated; toast water and barley water for drink.

At eight, A. M., 29th, appeared somewhat relieved of all the unpleasant symptoms, and had eaten half a cracker. Directed a dose of salts, and a continuation of the solution of antimony.

At six, P. M., salts had not operated; symptoms more aggravated; directed a repetition of the salts, and a continuation of the antimony.

At eight, A. M., on the 30th, all the symptoms much more favourable; had eaten a cracker; toast water and barley water continued for drink, and continuation of the antimony.

May 1st, at eight, A. M., symptoms the same as the previous day; had had a very restless night; drops began to act freely upon the bowels.

2nd. At eight A. M., had had a comfortable night compared with the former; tongue appears cleaning; has eaten some oyster soup.

3d. At eight, A. M., appears still more comfortable; sits up part of the day, and appears convalescent. She now complains only of debility and soreness of the tongue; her lower extremities appear somewhat œdematous, and her pulse is still frequent, but soft and elastic.

30th May. She is now enjoying her usual health.

Wound of the Brachial Artery, cured by Compression. By J. W. Heustis, M. D., of Mobile.—On the night of the 27th of March, I was called to see a man that had been stabbed in the humerus; as I was not at home, my student, Mr. Carter, attended him, in company with Dr. Lynch H. Deas. We met in consultation a short time afterwards. The hæmorrhage had ceased from syncope and loss of blood, and I found the patient perfectly blanched, and almost lifeless; he was cold and nearly inanimate, with no perceptible pulse. The wound had been inflicted with a dirk, upon the inner side of the biceps, about six inches below the upper extremity of the humerus. I had previously experienced the efficacy of compression in wounds and aneurisms of the artery at the bend of the arm, of which an account may be found in a preceding number of this journal. It was, therefore, adopted on the present occasion. A graduated compress was employed; and some five or six pieces of money, from the size of a dime to that of twenty-five cents, were wrapped in a rag, and placed accurately on the wound; over this a larger compress was applied, extending five or six inches along the course of the artery, and the whole secured by a roller bandage. A bandage of the same description was next applied, with moderate tightness, from the hand upwards, and the patient left, for the present, to time and repose. The next morning he was better; reaction had taken place, and the pulse in the opposite arm from the one wounded was quite perceptible, although no pulsation could be perceived in the other. On the third day, as he complained of pain from the tightness of the bandage, and as there was some tumefaction of the hand, the compression was slackened, and the pieces of money removed. The arm was still considerably swollen above the bandage, as it had been at first, where the bandage was applied, from the injection of blood between the muscles, and into the subcutaneous cellular substance. The compression, however, had caused this to be principally absorbed, so that where the compress had been applied, there was quite an indentation. The whole of the interior of the arm and forearm were much discoloured with ecchymosis, and was tender to the touch.

There was no subsequent disposition to hæmorrhage from the wounded artery, which healed up together with the external orifice, by the first intention, and without the formation of any aneurismal tumour. The pulse, however, in the radial artery of the injured limb, is still scarcely perceptible, and has probably

been rendered impervious at the wounded part.   His arm retains its sensibility and motion; the man, however, still remains rather feeble and pallid, from his excessive loss of blood.

From this and other instances which I have witnessed, I am inclined to think that ligatures are seldom necessary in wounds of the arteries of the extremities.

Case of Extensive and deep-seated injury of the Brain, unattended by any disturbance of the Intellect, and terminating favourably.   By JAMES COUPER, Jr., M. D., of New Castle, Delaware.—On the 13th of September, 1835, at 10 o'clock in the morning, a son of Mr. Allen of this neighbourhood, three and a half years old, of full size and in perfect health, climbed to the top of a fence four feet eight inches in height, and when there lost his balance, and fell headlong upon the opposite side.   On that side of the fence there happened to be a pile of weather-boards, which had been taken from an old building. One of them rested on the ground, and extended to the spot upon which he fell.   It was so firmly fixed by the weight of boards above it, as to be incapable of yielding to the impulse of a body falling on it, and through the end of it the sharp extremity of a stout *wrought* nail projected.   In falling, the head of the child struck upon this nail.   Its point entered the right parietal bone, just behind the central point of the right half of the coronal suture, and at the distance of half an inch from it.   Its direction was, from the point of entrance, towards the centre of the basis of the brain, and the part of it which entered the skull, measured two inches and a quarter.   After the head had been driven close up to the surface of the board by the perpendicular force of the fall, the child fell over upon his right side, thus causing the point of the nail to describe a segment of a circle within the substance of the brain.   The accident was first observed by a girl belonging to the family, who ran to the assistance of the child, and made several ineffectual efforts to relieve him by lifting up *his body*.   Having failed in her attempts, she called to her aid a young man, who at first made like trials to release him, by raising his body from the ground.   Defeated in these, he at last succeeded in extricating the boy from his distressing situation, by interlocking the fingers of both his hands beneath the head, and forcibly raising it off from the board.   Upon the extraction of the nail, small portions of brain were found adhering to it, and other pieces afterwards came away from the wound.   But little blood was lost—it amounted, perhaps, to two fluid ounces, and came principally from a minute arterial twig belonging to the scalp.   When I first saw the patient, which was within an hour from the time of the accident, he had fallen asleep, but was readily aroused by my efforts to clear away the blood from the wound, and struggled resolutely to escape from them.   During the afternoon of that day, he vomited freely several times.   At ten o'clock at night, he was suddenly seized with total loss of power over the left side, but without any corresponding loss of sensation, or any paralytic affection of the tongue.   His speech, both then and afterwards, was perfectly natural, as were also his eyes and the general expression of his countenance.   Distinct attempts were made by the system to set up inflammatory action within the cranium on the second, fourth, fifth, and seventh days after the injury, but these were readily defeated by prompt and efficient depletory measures.   A slight discharge continued to flow from the wound for about a week and then ceased entirely. The paralysis has passed off regularly, but slowly.   At this time, (five months from the date of the accident,) although the child runs about as usual, and exercises constantly and very freely without difficulty, there remains a slight general weakness of the arm, with a degree of defect in the power of the flexor and adductor muscles of the thigh of the affected side.   The treatment of this case, in which I was aided in consultation by Dr. Baker of Wilmington, consisted in the diligent use of free general and local depletion, together with those other

45*

measures by which inflammation of the brain may be prevented or removed. The preceding case appears to me to be interesting.

1. On account of the depth and extent to which the brain must have been broken up by the nail in its entrance, and its subsequent movements within the cranium, produced by the various ill-directed efforts to release the child.

2. From the fact that paralysis of the opposite side did not come on as an *immediate*, but *remote* effect of such serious injury to the brain, occurring at the end of twelve hours from the time of the accident, and that *suddenly*.

3. As exhibiting an instance of recovery after extensive *deep-seated* damage to the brain, and especially as proving that such important mischief within the skull does not necessarily impair the intellectual powers. No aberration of mind whatever was observed during the whole course of the case, although it was closely and carefully watched with particular reference to this point.

Letter from Drs. Chapman and Randolph to the editor of the Southern Literary Messenger.—Sir, a mistake, evidently unintentional, having appeared in the February number of your journal for this year, we feel convinced you will, upon proper representation, take pleasure in correcting it, as an impression so erroneous might have a prejudicial tendency. Under the notice of the Eulogies on the Life and Character of the late Chief Justice Marshall, it is there stated that "for several years past Judge Marshall had suffered under a most excruciating malady. A surgical operation by Dr. Physick of Philadelphia at length procured him relief; but a hurt received in travelling last Spring seems to have caused a return of the former complaint with circumstances of aggravated pain and danger. Having revisited Philadelphia in the hope of again finding a cure, his disease there overpowered him, and he died on the 6th of July, 1835, in the 80th year of his age."

Now, sir, the above quotation is incorrect in the following respect:—Judge Marshall never had a return of the complaint for which he was operated upon by Dr. Physick. After the demise of Chief Justice Marshall, it became our melancholy duty to make a *post mortem* examination, which we did in the most careful manner, and ascertained that his bladder did not contain one particle of calculous matter; its mucous coat was in a perfectly natural state, and exhibited not the slightest traces of irritation.

The cause of his death was a very diseased condition of the liver, which was enormously enlarged, and contained several tuberculous abscesses of great size; its pressure upon the stomach had the effect of dislodging this organ from its natural situation, and compressing it in such a manner, that for some time previous to his death it would not retain the smallest quantity of nutriment. By publishing this statement, you will oblige

Yours, very respectfully,   N. CHAPMAN, M. D., J. RANDOLPH, M. D.
To T. W. White, Esq.
    Philadelphia 25th *March*, 1836.

OBITUARY NOTICE.—SAMUEL BAKER, M. D., of Baltimore.—This amiable and excellent physician was born in Baltimore, on the 31st of October, 1785. His father, William Baker, emigrated from Germany when a young man, and married a lady of Irish extraction. His elementary education was obtained in an academy at Baltimore; but, at fifteen years of age, he was sent to Chestertown College, at that time a somewhat noted seminary of learning, of which Dr. Ferguson was principal. On the completion of his academical studies, he was placed in the apothecary store of Dr. Henry Wilkins, in order that he might obtain a practical knowledge of pharmacy; and, after his course with Dr. Wilkins was concluded, he entered the office of Drs. Littlejohn and Donaldson, as a pupil. In the winters of 1806-7, and 1807-8, he attended the medical lectures of the University of Pennsylvania, and became an honorary member of the Medical Lyceum, and of the Medical Society of Philadelphia. In the spring of 1808, when in his 23d year, he attained the highest honours of his Alma Mater, the subject of his inaugural dissertation being Chorea. He now returned to Baltimore, and entered upon the practice of his profession. In the

year 1809, he was elected Professor of Materia Medica in the Medical College of Baltimore. This appointment he held until the spring of 1833, when he resigned his situation, and devoted himself entirely to the duties of an extensive and laborious practice.

The writer of this brief notice had no opportunity of witnessing the qualifications of Dr. Baker as a medical teacher. He had ceased to lecture before the writer's removal to Baltimore. One, however, who was well capable of judging,* has thus characterized them:—

"As a lecturer, Dr. Baker maintained to the period of his retirement, an undiminished reputation for a comprehensive knowledge of the branch of medicine which he taught. He made no parade of learning, and never attempted to amuse by fanciful and idle speculations. He culled the facts and opinions of the older writers with judicious skill, and he diligently searched the numerous volumes of his cotemporaries, for the results of the labours of a more enlightened age. The fruits of his own observation and judgment, added to the useful matter thus collected from books, both ancient and modern, were delivered in a plain and lucid style. His criticisms were always flavoured with modesty and respect, however erroneous he regarded the opinions against which they were directed; and his award of praise to those whom he esteemed successful cultivators of science, was frank and honourable. During the mention of medical facts that had come under his own notice, and when giving expression to the original reflections of his own mind, there was often in the lecture room a breathless silence, which indicated the profound respect entertained by the class for the judgment of their preceptor. He was a universal favourite with the students. The facts seen by himself and narrated to them, they believed as implicitly as if they had themselves been the observers, and his process of reasoning was rarely opposed by them in their conversational debates, without a serious mistrust of their own logic."

Dr. Baker was, for several years, secretary to the Medical and Chirurgical Faculty of the State of Maryland, and one of the members of its board of examiners for conferring licenses. He likewise served as president of the Baltimore Medical Society; originated a motion for the establishment of the 'Library of the Medical and Chirurgical Faculty of Maryland,' of the Board of Directors of which he remained chairman until the time of his death; and was one of the founders of the 'Baltimore Medico-Chirurgical Society,' of which, also, he was presiding officer when he died.

As respects the estimate placed by the writer of this article on the character of Dr. Baker, and the value of his professional and philanthropic exertions, he may be permitted to quote the following tribute, delivered by him at the termination of an introductory lecture, at the commencement of the last session of the Medical Department of the University of Maryland:—

"I cannot conclude this contemplation of frail mortality without alluding to the loss, which we, in common with this community, have recently sustained in the death of one whose office it was, year after year, to fulfil the duty which now devolves so unworthily upon me. Yes! gentlemen; from this very place has the young investigator of the animal economy annually heard the precepts of experience from his lips, which are now hushed in the silence of the grave. Associated with the Medical Department of the University of Maryland, almost from its very inception, as the Professor of Materia Medica; largely concerned with the plan and execution of this fair fabric; liberal, indeed, in his pecuniary advancements, at a time when embarrassment existed to such an extent as to throw difficulties in the way of its completion, Dr. Baker has left behind him a monument which will endure, I trust, for ages. But this is a small part only of the gratitude that we owe him. What proposition has there been made for the improvement of medicine which did not receive his zealous support? Where was the occasion on which he was not ready to extend the hand of courtesy to a professional brother; and to do justice—more than justice, in one case at least—to the professional merits of another. It was mainly, in consequence of the noble and disinterested conduct of our lamented friend, that I have now the honour of

'Dr. J. Fonerden, in the 'Baltimore Athenæum' for January 2nd, 1836.

addressing you. In a manner most complimentary to his successor, and with a self-denial most honourable to himself, he relinquished the emoluments and advantages of his chair to another, and that other, at the time, personally, almost unknown to him. How rare for us to meet with such superiority to regards of private advantage! and how highly ought we to cherish and commemorate it. I know, gentlemen, that there is a feeling of an amiable, but, I think, unfortunate nature, which is as prevalent as it is injurious, and is embodied in the old maxim —that of the dead we should say nothing but what is favourable; and, accordingly, we are constantly doomed to find, that many who have spent their worthless lives, disregarded and despised by all who knew them, receive after their decease commendations which they merit not; or have their vices slurred over and mitigated, whenever they become the topic of animadversion. It is a fault which originates in estimable feelings; but, when ethically regarded, it cannot be esteemed free from objections. The prospect of future rewards and punishments is confessedly an incentive to correctness of conduct; and the transmission of a fair name to posterity must enter largely into the consideration of the good, as one of those rewards; but if the wicked and the trifling are to receive equal posthumous commendation with the upright and the distinguished, one great incentive to distinction—intellectual or moral—is rendered entirely nugatory.

"Very different from this—and much more in accordance with morality—was the practice of the ancient Egyptians. When any one of their fellow men died, an opportunity was afforded to every accuser to step forward; and if it was proved that the conduct of the deceased had been dishonourable, his memory was made infamous, and his body was denied sepulture. If, on the other hand, he escaped unscathed, the body was honourably interred. Even their kings were subjected to this ordeal, and some were deprived of inhumation, by reason of an unfavourable verdict. When the judgment was propitious to the deceased, a funeral panegyric was passed on his merits; and, in this panegyric, titles, dignity, birth, possessions were set at nought, because they are the gifts of fortune, whilst the orator dwelt, in eulogy, on piety towards the gods, justice towards his fellow men, and all the virtues that constitute the good man. These ancient funeral orations might, indeed, be a model for those *oraisons funèbres*, which are so common in some countries, where the rank of the deceased has often more to do with the eulogium than exalted personal merit.

"How brightly would our departed friend have issued from such an ordeal as this! His life was, indeed, a beautiful model of all the virtues that can adorn the man. Throughout his laborious and useful career, the breath of calumny could not soil the bright mirror of his reputation. As a member of the Medical Faculty of the University, his connexion with his colleagues, during the many years of his association with them, was one of unalloyed courteousness, and of strenuous co-operation in every proposition for the advancement of the institution. As a member of his profession, he was unwearied in the application of his talents, and the benevolent feelings of his nature to the relief of his fellows; and, as a man, his motto was—'peace and good will towards men.' I need not, in this community, dwell upon the many benevolent acts of this exemplary individual; how many bleeding hearts he has consoled in their distresses; what expense of time, talent, and comfort he generously appropriated to the relief of suffering humanity, without expectation of pecuniary reward. The scene—doubtless witnessed by many of you, on the day when his mortal remains were consigned to the tomb—of the multitudes who crowded to exhibit their respect, and, ere the grave closed over him, to obtain one last look of their friend or their benefactor, testified in deep-toned and affecting language to the excellence of the man, and to the value and extent of his services. He was, eminently, the attentive and benevolent physician; the untiring philanthropist; the pattern of religious and moral goodness. Can I, young gentlemen, present a fairer model for your emulation? Can I conclude with a more suitable aspiration, than that—at the termination of, I trust, a long and successful career—you may merit the same honourable eulogy?"

In the latter years of his life, Dr. Baker had several severe attacks of illness, and the disease which proved fatal, was so illusory, that but little apprehension was felt for him until a day or two prior to his dissolution. He died on the sixteenth of October last, at the ripe age of 50.   R. D.

INDEX.